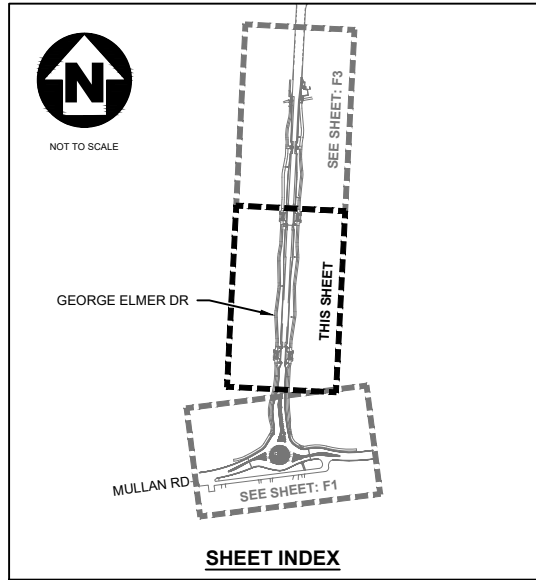
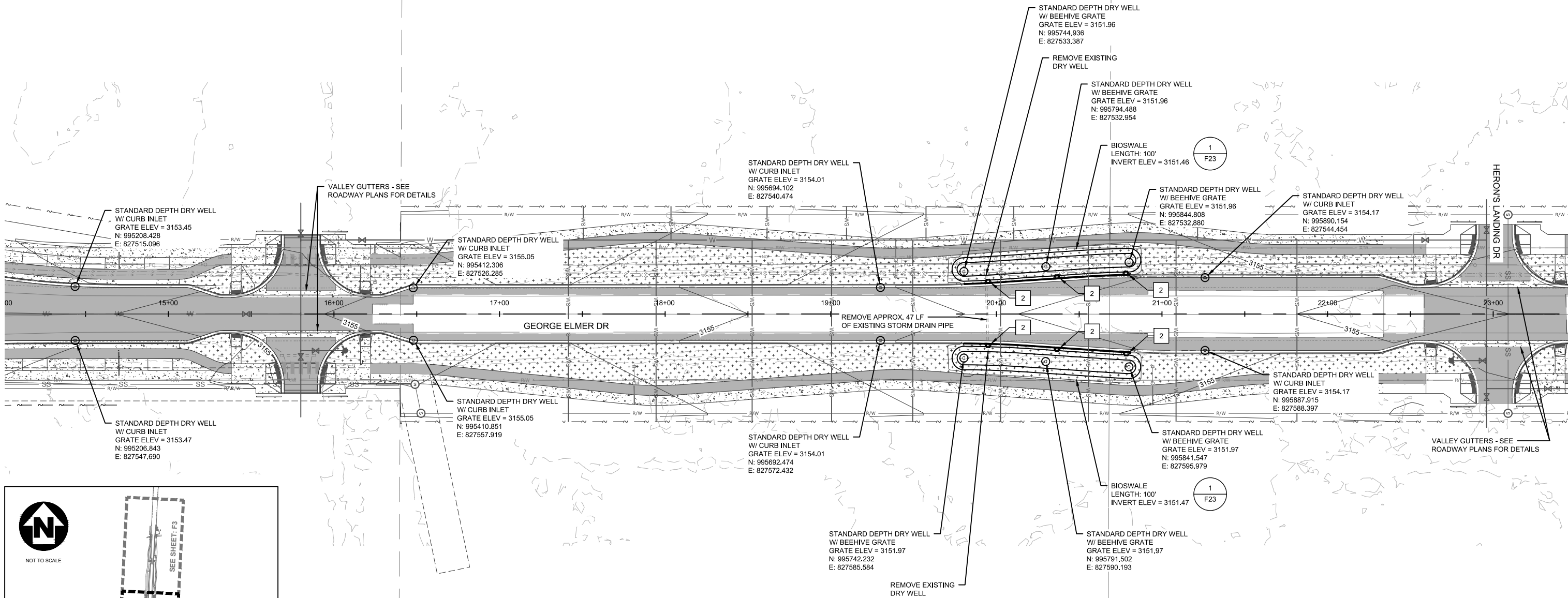
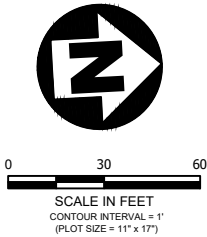


NOTES:

1. FOR DRY WELLS LOCATED ALONG CURB SECTIONS, NORTHINGS AND EASTINGS PROVIDED ARE FOR THE CENTER OF STRUCTURE (48" BARREL SECTION) WHICH CORRESPONDS TO THE FRONT OF GUTTER PAN, AND ASSUMES AN ECCENTRIC CONE TOP SECTION. IF A TOP SECTION OTHER THAN AN ECCENTRIC CONE IS USED OR THE STRUCTURE IS ROTATED, THE CONTRACTOR IS RESPONSIBLE FOR ADJUSTING THE LAYOUT OF STRUCTURE AS NEEDED SO THAT INLETS ARE POSITIONED PROPERLY RELATIVE TO THE CURB AND GUTTER. FOR CATCH BASINS, NORTHING AND EASTINGS PROVIDED ARE AT THE CENTER OF THE STRUCTURE (30" OR 48" BARREL SECTION). GRATE ELEVATIONS PROVIDED ARE AT THE LOWEST POINT OF THE GRATE (E.G., ALONG THE CURB AND GUTTER FLOWLINE FOR CURB INLET GRATES).



KEY NOTES:

2 TYPE 2 CURB OPENING
(SEE DETAILS, SHEET F25)

CALL UTILITY NOTIFICATION
CENTER OF MONTANA
811
CALL FOR THE MARKING OF UNDERGROUND
UTILITIES 2 BUSINESS DAYS BEFORE
YOU DIG, GRADE, OR EXCAVATE

REVISION	DATE	DESCRIPTION

DESIGNER	LAS	PROJ. NO.	7065
DRAWN	JCW	DATE	05/05/2021
CHECKED	JLS	SURVEYED	DJ&A P.C.



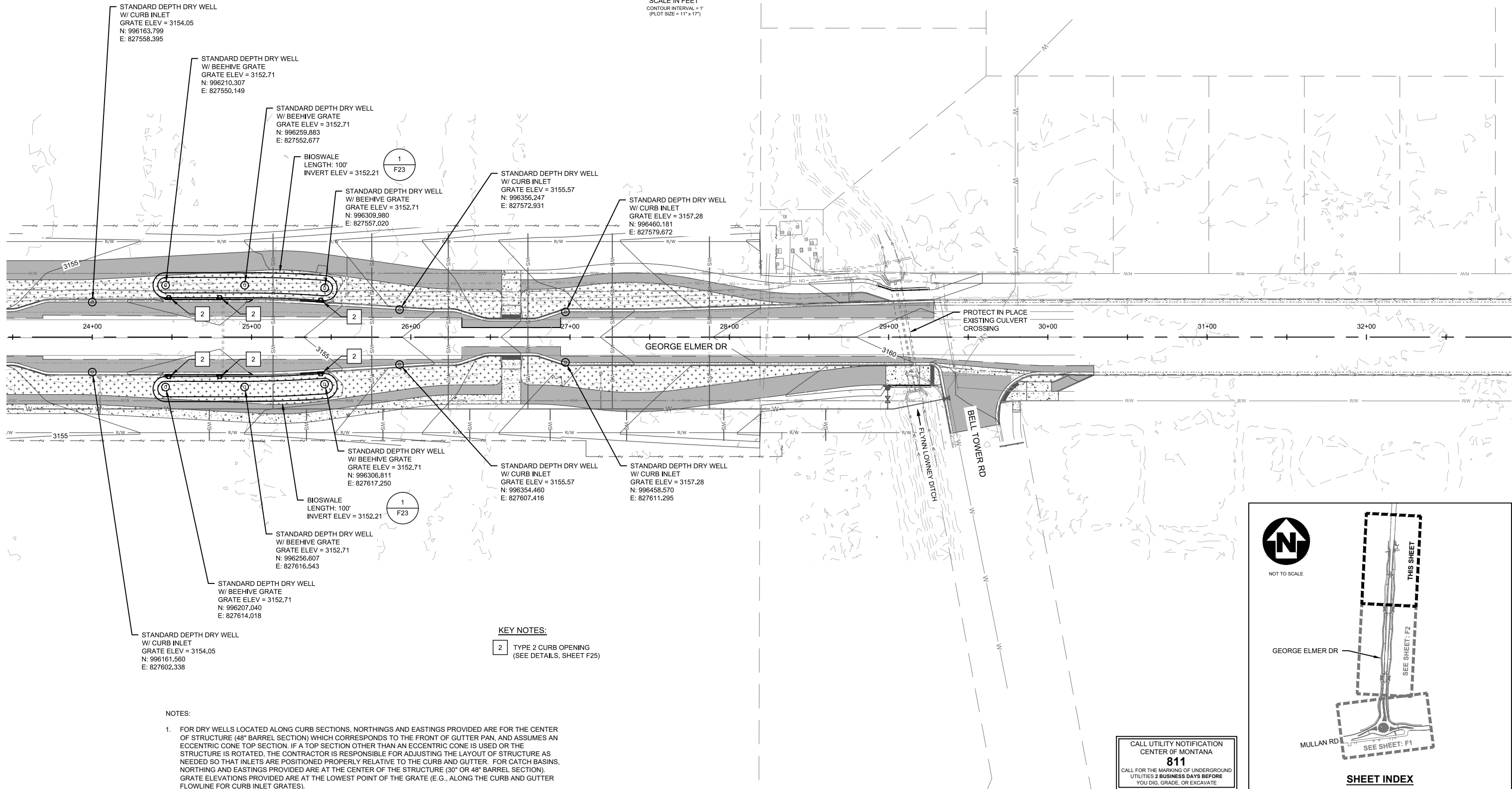
MULLAN BUILD - DRAINAGE - STORMWATER - IRRIGATION
100% - BID PLANS

GEORGE ELMER DRIVE (SOUTH)

SHEET
OF
F2 F25



0 30 60
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")



NOTES:

1. FOR DRY WELLS LOCATED ALONG CURB SECTIONS, NORTHINGS AND EASTINGS PROVIDED ARE FOR THE CENTER OF STRUCTURE (48" BARREL SECTION) WHICH CORRESPONDS TO THE FRONT OF GUTTER PAN, AND ASSUMES AN ECCENTRIC CONE TOP SECTION. IF A TOP SECTION OTHER THAN AN ECCENTRIC CONE IS USED OR THE STRUCTURE IS ROTATED, THE CONTRACTOR IS RESPONSIBLE FOR ADJUSTING THE LAYOUT OF STRUCTURE AS NEEDED SO THAT INLETS ARE POSITIONED PROPERLY RELATIVE TO THE CURB AND GUTTER. FOR CATCH BASINS, NORTHING AND EASTINGS PROVIDED ARE AT THE CENTER OF THE STRUCTURE (30" OR 48" BARREL SECTION). GRATE ELEVATIONS PROVIDED ARE AT THE LOWEST POINT OF THE GRATE (E.G., ALONG THE CURB AND GUTTER FLOWLINE FOR CURB INLET GRATES).

KEY NOTES:

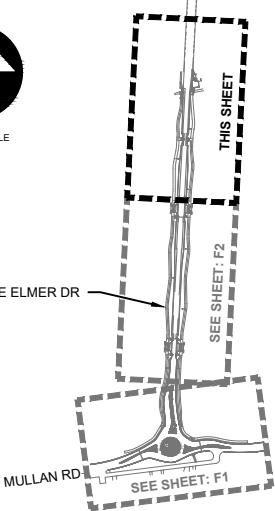
- 2 TYPE 2 CURB OPENING
(SEE DETAILS, SHEET F25)



NOT TO SCALE

GEORGE ELMER DR

MULLAN RD



SHEET INDEX

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811
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REVISION	DATE	DESCRIPTION

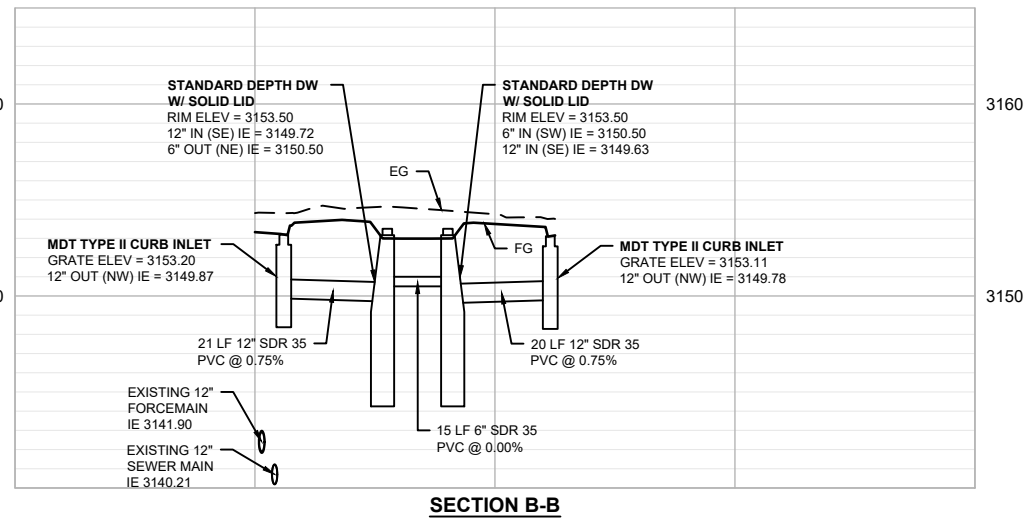
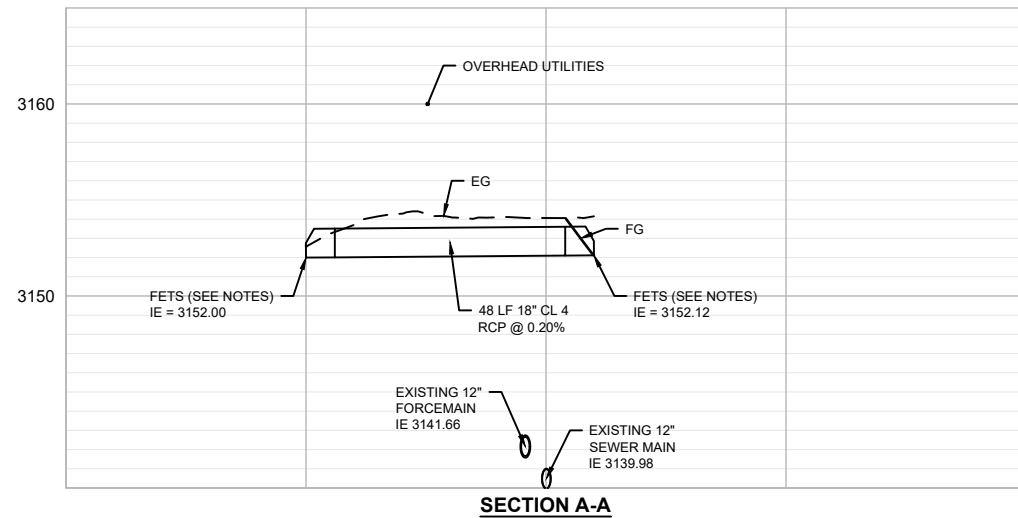
DESIGNER LAS PROJ. NO. 7065
DRAWN JCW DATE 05/05/2021
CHECKED JLS SURVEYED DJ&A P.C.



MULLAN BUILD - DRAINAGE - STORMWATER - IRRIGATION
100% - BID PLANS

GEORGE ELMER DRIVE (SOUTH)

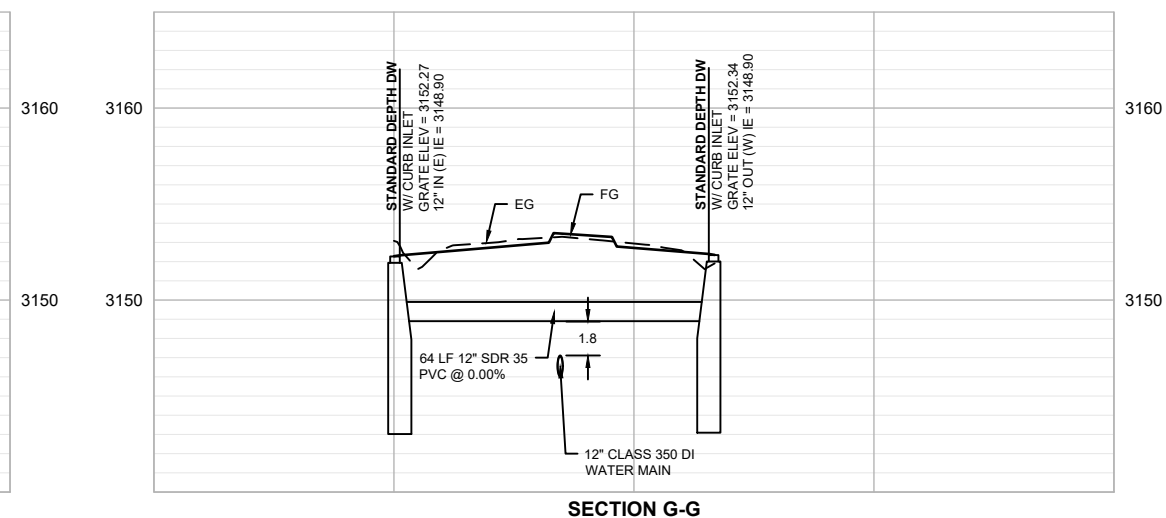
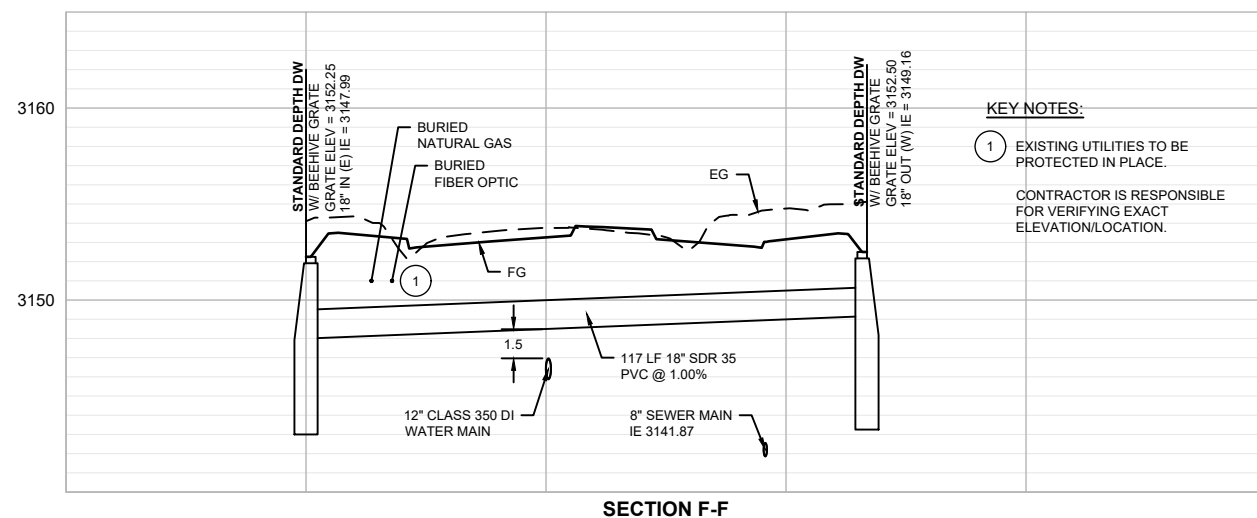
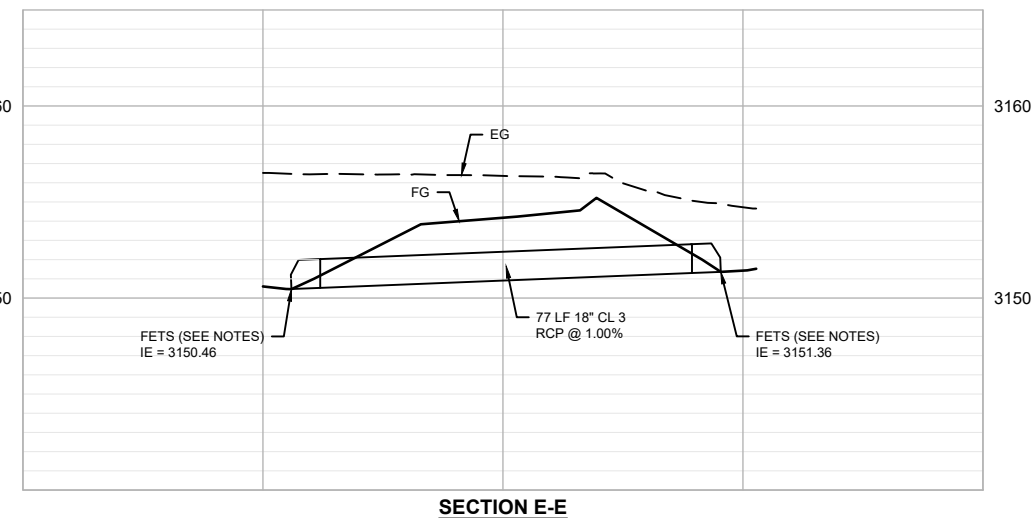
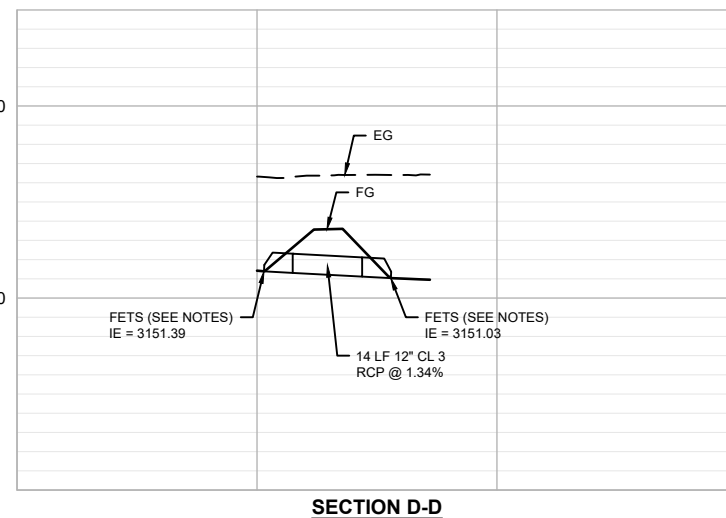
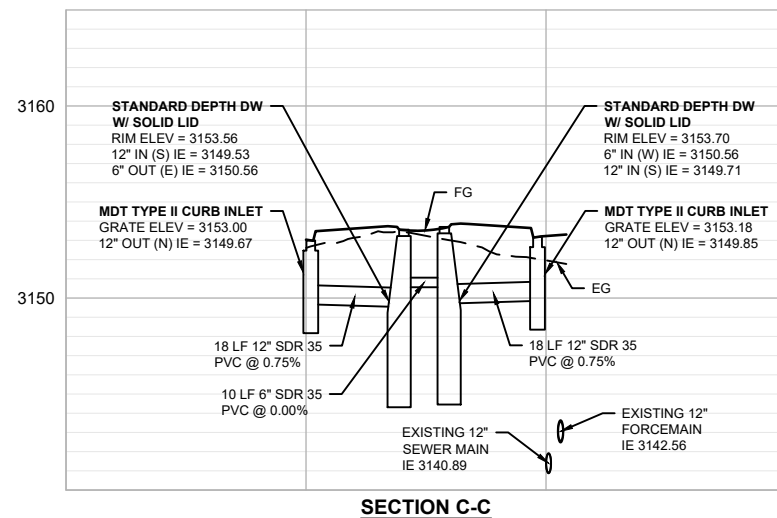
SHEET
OF
F3 F25



CALL UTILITY NOTIFICATION
CENTER OF MONTANA
811
CALL FOR THE MARKING OF UNDERGROUND
UTILITIES 2 BUSINESS DAYS BEFORE
YOU DIG, GRADE, OR EXCAVATE

0 20 40
HORIZONTAL SCALE IN FEET

- ABBREVIATIONS:**
- EG = EXISTING GROUND
FG = FINISHED GRADE
DW = DRY WELL
- NOTES:**
- PIPE LENGTHS IN LINEAL FEET ARE PROVIDED FROM CENTER OF MANHOLE/STRUCTURE UNLESS NOTED OTHERWISE.
 - PIPE LENGTHS IDENTIFIED IN THE PLANS DO NOT INCLUDE THE LENGTH OF FETS, WHERE PRESENT. FETS ARE NOT MEASURED SEPARATELY FOR PAYMENT. INCLUDE THE COST FOR FETS IN THE UNIT PRICE COST FOR THE RESPECTIVE PIPE.



- KEY NOTES:**
- EXISTING UTILITIES TO BE PROTECTED IN PLACE.
- CONTRACTOR IS RESPONSIBLE FOR VERIFYING EXACT ELEVATION/LOCATION.

REVISION	DATE	DESCRIPTION

DESIGNER	LAS	PROJ. NO.	7065
DRAWN	JCW	DATE	05/05/2021
CHECKED	JLS	SURVEYED	DJA P.C.



MULLAN BUILD - DRAINAGE - STORMWATER - IRRIGATION
100% - BID PLANS

GEORGE ELMER DRIVE (SOUTH) - PIPE SECTIONS

SHEET
OF
F4 F25



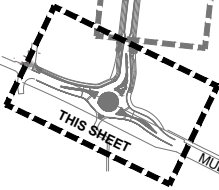
NOT TO SCALE

SHEET INDEX

MARY JANE BLVD

SEE SHEET: F6

SEE SHEET: F7



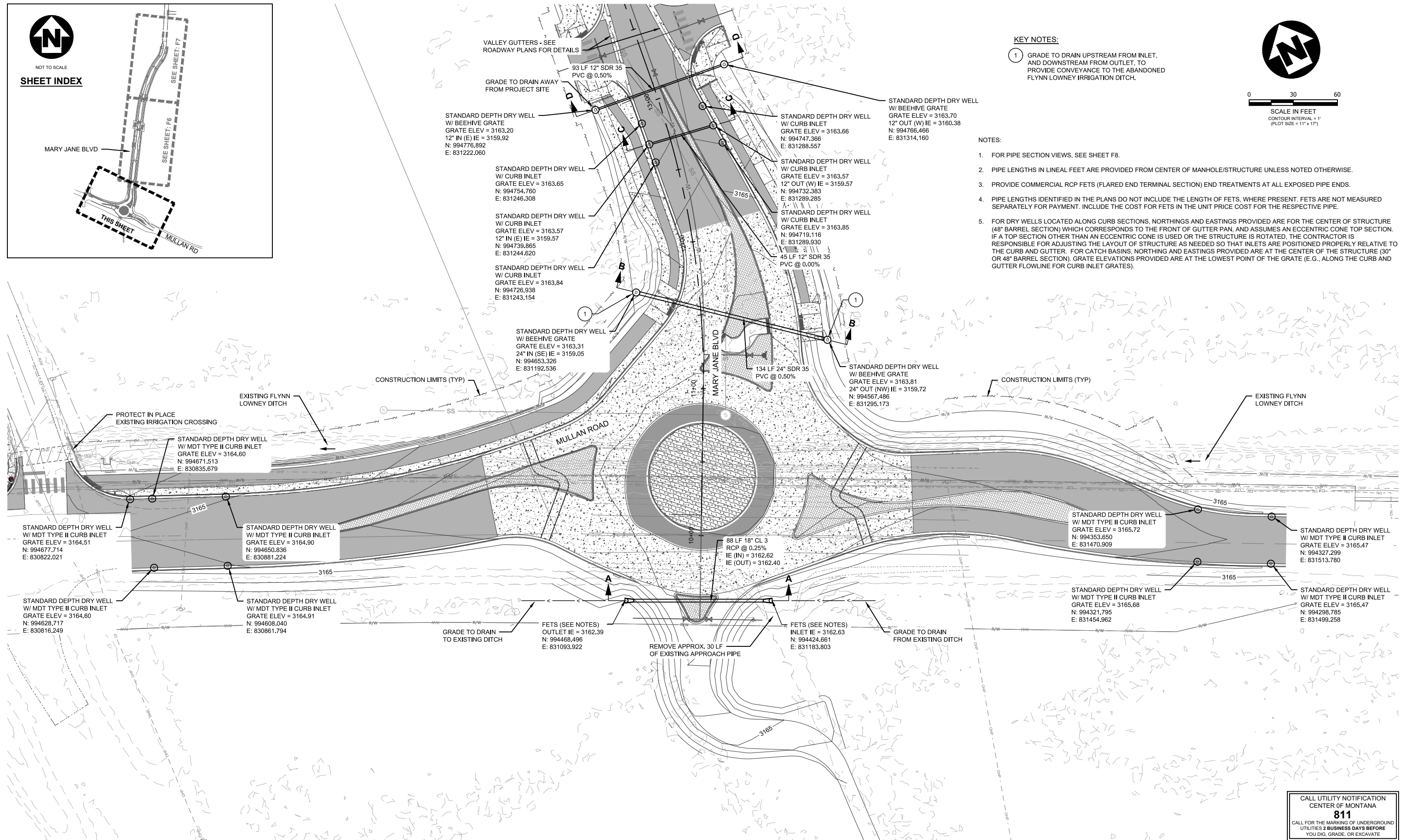
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

KEY NOTES:

- 1 GRADE TO DRAIN UPSTREAM FROM INLET, AND DOWNSTREAM FROM OUTLET, TO PROVIDE CONVEYANCE TO THE ABANDONED FLYNN LOWNEY IRRIGATION DITCH.

NOTES:

1. FOR PIPE SECTION VIEWS, SEE SHEET F8.
2. PIPE LENGTHS IN LINEAL FEET ARE PROVIDED FROM CENTER OF MANHOLE/STRUCTURE UNLESS NOTED OTHERWISE.
3. PROVIDE COMMERCIAL RCP FETS (FLARED END TERMINAL SECTION) END TREATMENTS AT ALL EXPOSED PIPE ENDS.
4. PIPE LENGTHS IDENTIFIED IN THE PLANS DO NOT INCLUDE THE LENGTH OF FETS, WHERE PRESENT. FETS ARE NOT MEASURED SEPARATELY FOR PAYMENT. INCLUDE THE COST FOR FETS IN THE UNIT PRICE COST FOR THE RESPECTIVE PIPE.
5. FOR DRY WELLS LOCATED ALONG CURB SECTIONS, NORTHINGS AND EASTINGS PROVIDED ARE FOR THE CENTER OF STRUCTURE (48" BARREL SECTION) WHICH CORRESPONDS TO THE FRONT OF GUTTER PAN, AND ASSUMES AN ECCENTRIC CONE TOP SECTION. IF A TOP SECTION OTHER THAN AN ECCENTRIC CONE IS USED OR THE STRUCTURE IS ROTATED, THE CONTRACTOR IS RESPONSIBLE FOR ADJUSTING THE LAYOUT OF STRUCTURE AS NEEDED SO THAT INLETS ARE POSITIONED PROPERLY RELATIVE TO THE CURB AND GUTTER. FOR CATCH BASINS, NORTHING AND EASTINGS PROVIDED ARE AT THE CENTER OF THE STRUCTURE (30" OR 48" BARREL SECTION). GRATE ELEVATIONS PROVIDED ARE AT THE LOWEST POINT OF THE GRATE (E.G., ALONG THE CURB AND GUTTER FLOWLINE FOR CURB INLET GRATES).



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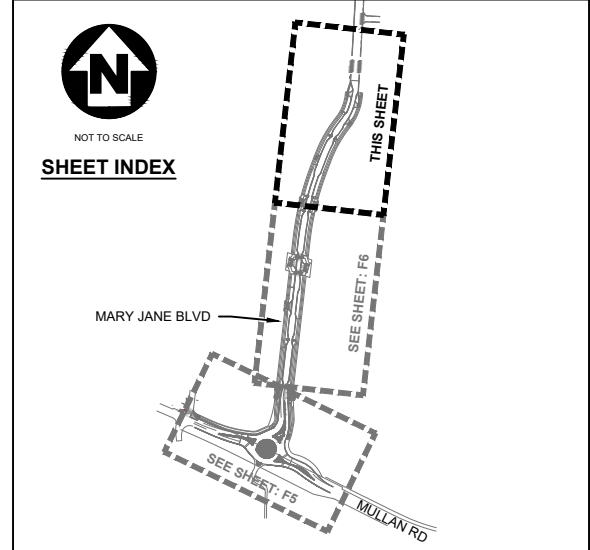
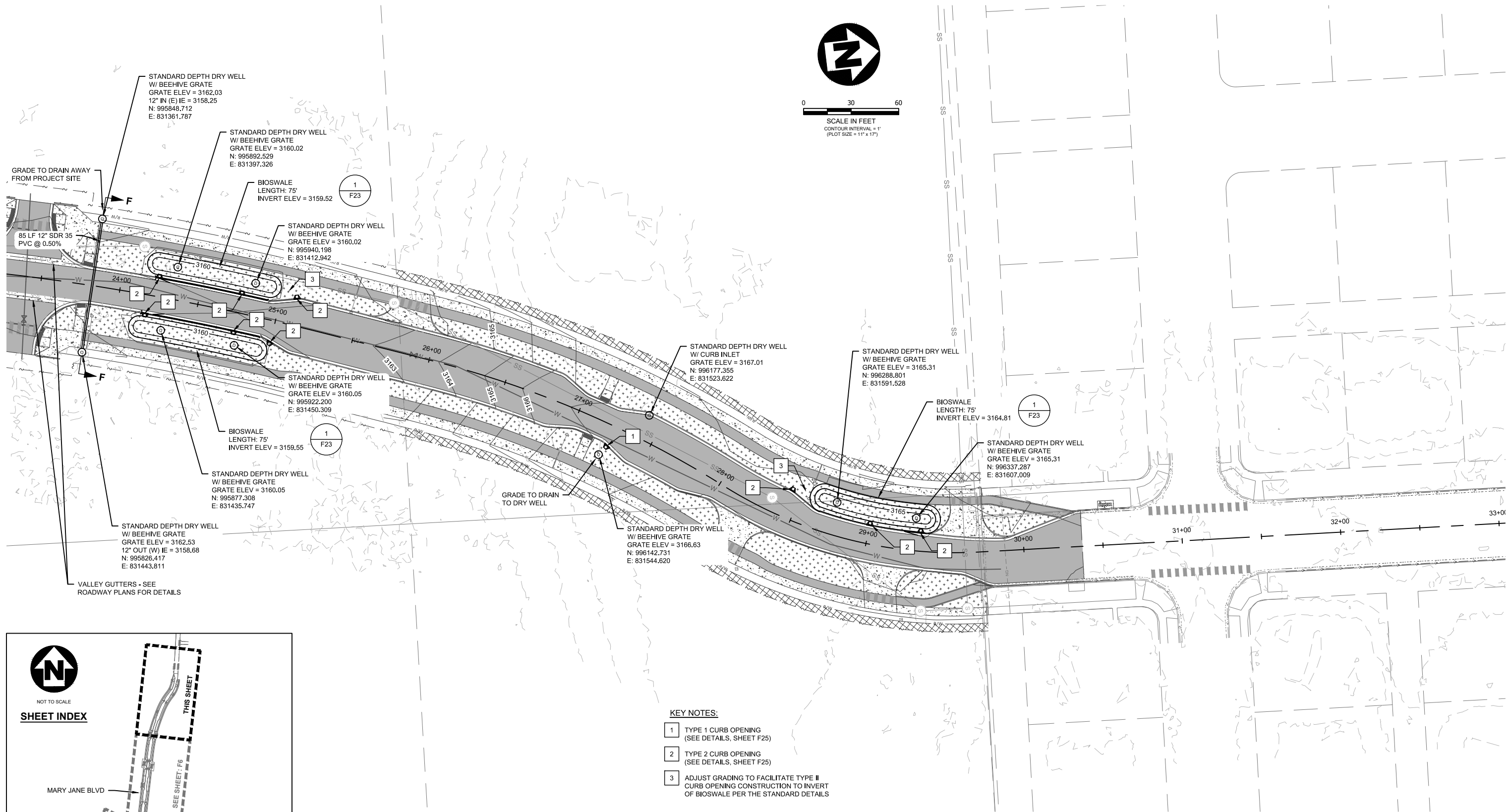


MULLAN BUILD - DRAINAGE - STORMWATER - IRRIGATION
100% - BID PLANS

MARY JANE BLVD. (SOUTH)

SHEET
OF
F5 F25

CALL UTILITY NOTIFICATION
CENTER OF MONTANA
811
CALL FOR THE MARKING OF UNDERGROUND
UTILITIES 2 BUSINESS DAYS BEFORE
YOU DIG, GRADE, OR EXCAVATE



- KEY NOTES:**
- 1 TYPE 1 CURB OPENING
(SEE DETAILS, SHEET F25)
 - 2 TYPE 2 CURB OPENING
(SEE DETAILS, SHEET F25)
 - 3 ADJUST GRADING TO FACILITATE TYPE II
CURB OPENING CONSTRUCTION TO INVERT
OF BIOSWALE PER THE STANDARD DETAILS

- NOTES:**
- 1. FOR PIPE SECTION VIEWS, SEE SHEET F8.
 - 2. PIPE LENGTHS IN LINEAL FEET ARE PROVIDED FROM CENTER OF MANHOLE/STRUCTURE UNLESS NOTED OTHERWISE.
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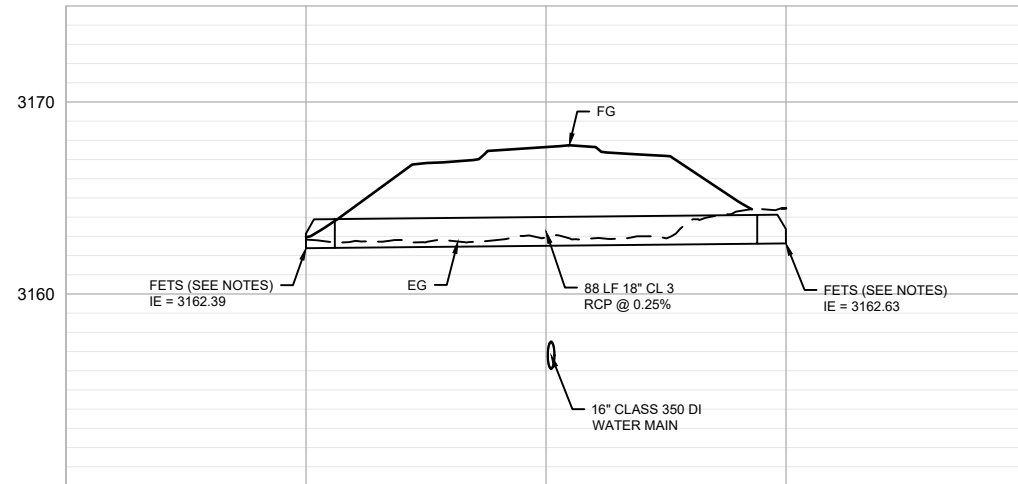
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DRAWN	JCW	DATE	05/05/2021
CHECKED	JLS	SURVEYED	DJ&A P.C.



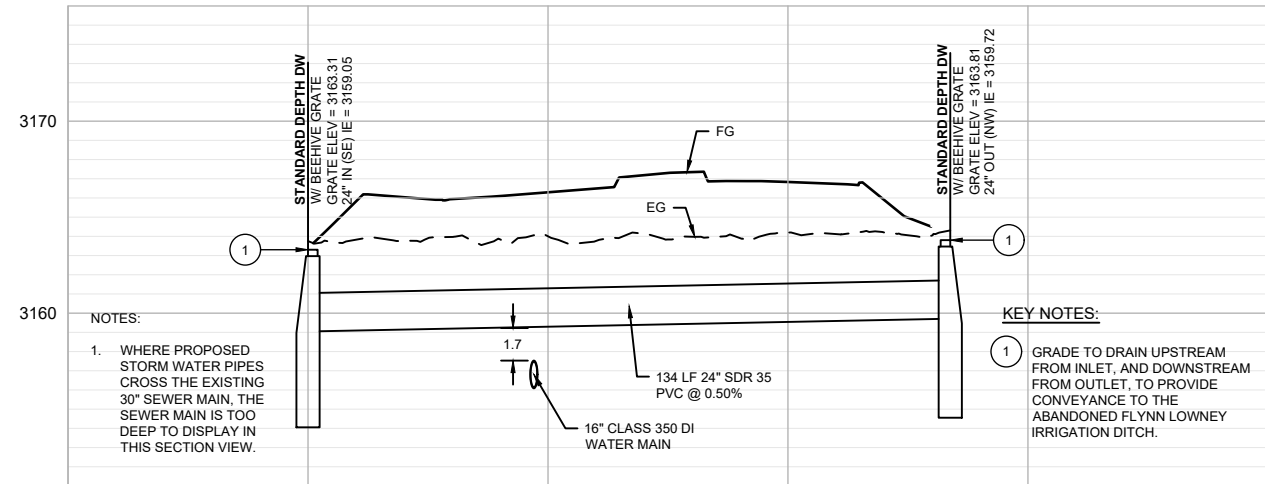
MULLAN BUILD - DRAINAGE - STORMWATER - IRRIGATION
100% - BID PLANS

MARY JANE BLVD. (SOUTH)

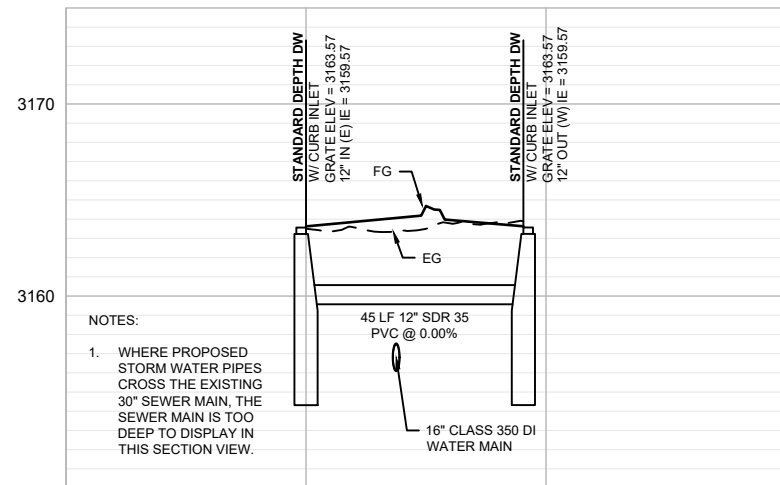
SHEET
OF
F7 F25



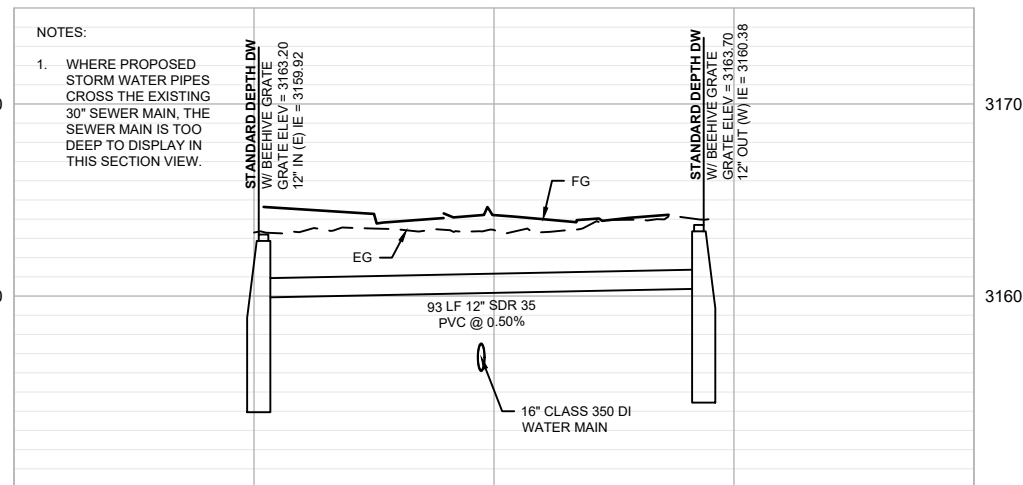
SECTION A-A



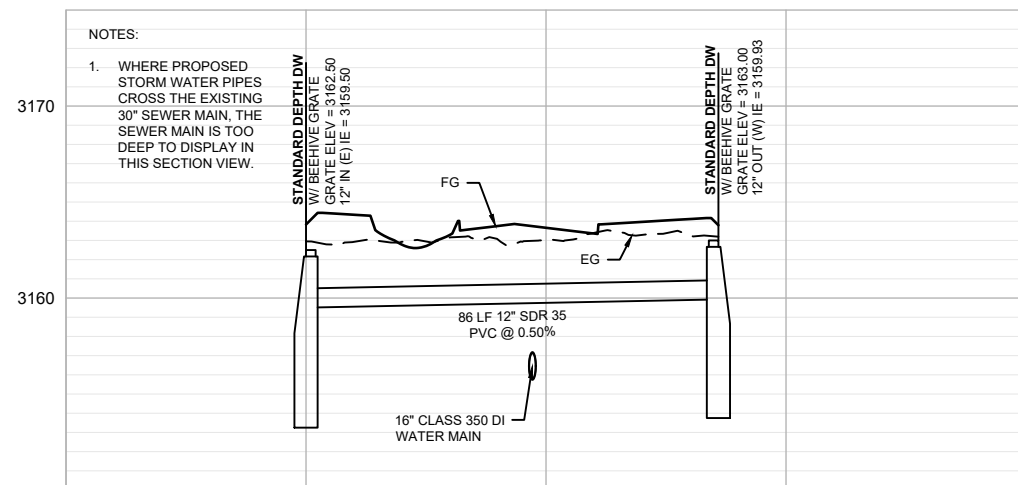
SECTION B-B



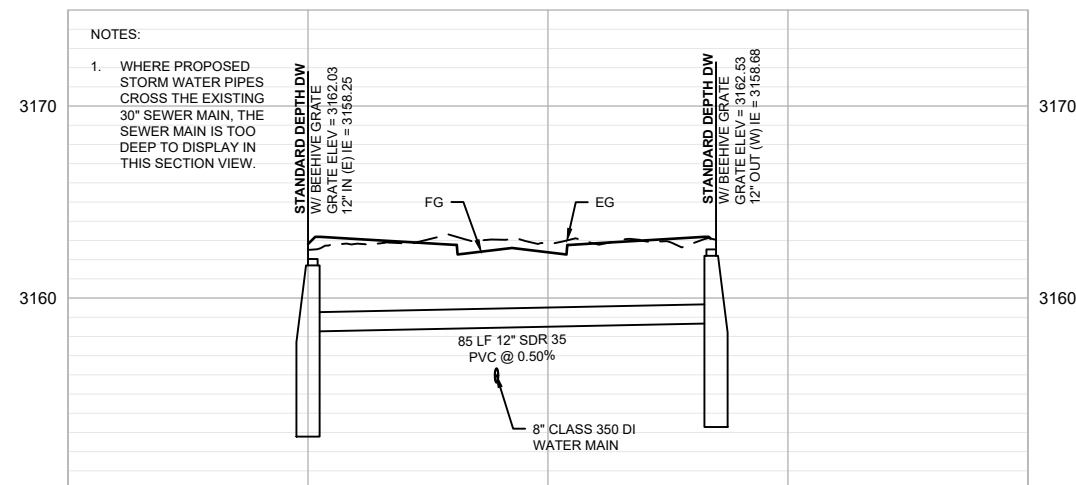
SECTION C-C



SECTION D-D



SECTION E-E



SECTION F-F

CALL UTILITY NOTIFICATION
CENTER OF MONTANA
811
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UTILITIES 2 BUSINESS DAYS BEFORE
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0 20 40
HORIZONTAL SCALE IN FEET

ABBREVIATIONS:

EG = EXISTING GROUND
FG = FINISHED GRADE
DW = DRY WELL

NOTES:

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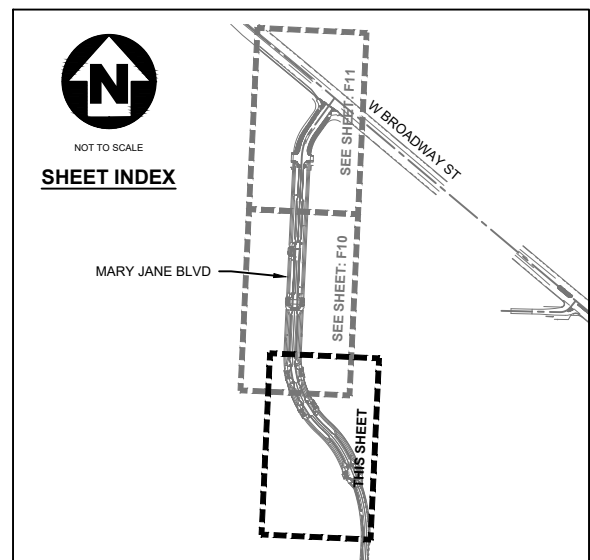
MULLAN BUILD - DRAINAGE - STORMWATER - IRRIGATION
100% - BID PLANS

MARY JANE BLVD. (SOUTH) - PIPE SECTIONS

SHEET
OF
F8 F25



0 30 60
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")



REVISION	DATE	DESCRIPTION

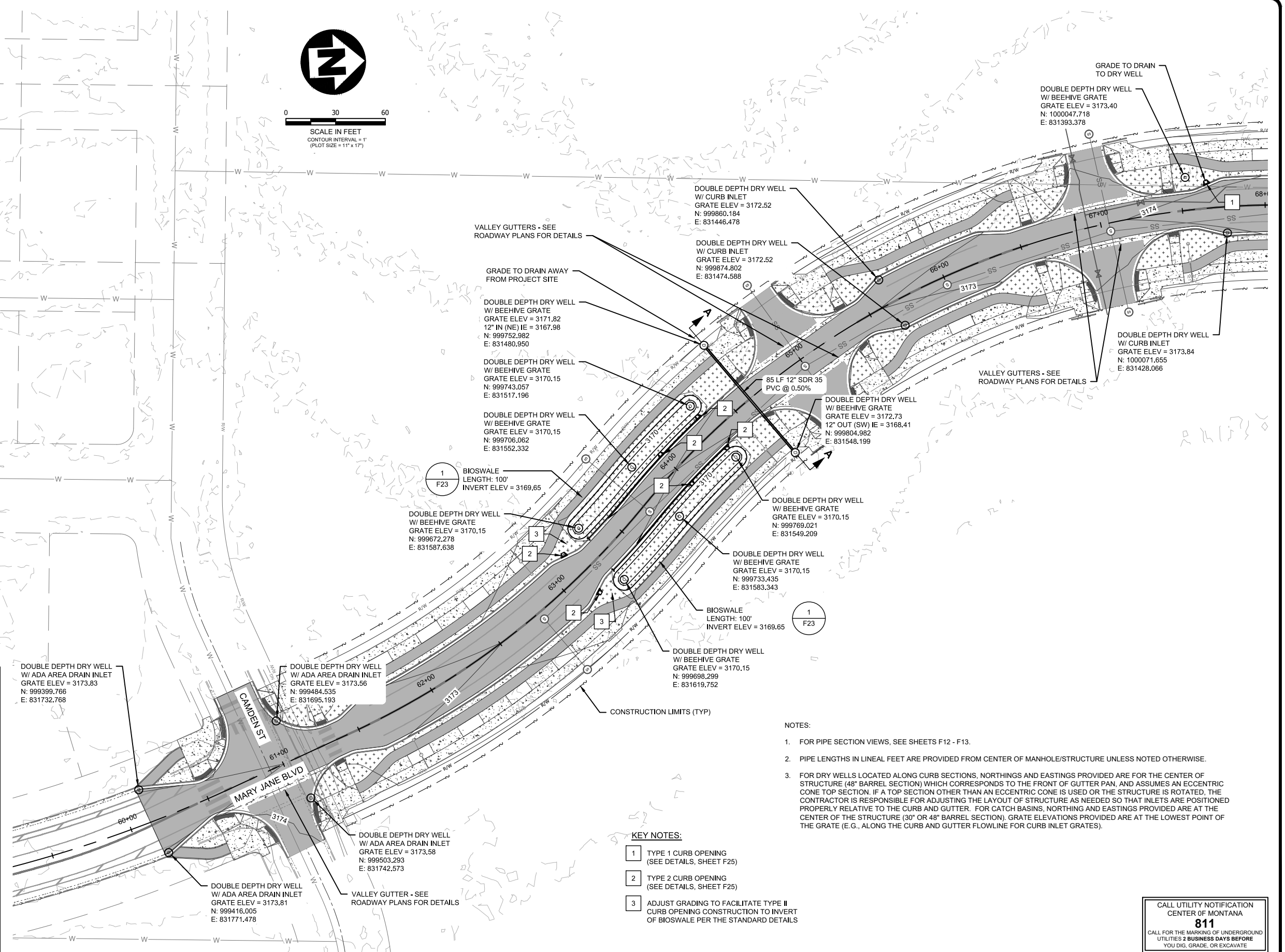
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MULLAN BUILD - DRAINAGE - STORMWATER - IRRIGATION
100% - BID PLANS

MARY JANE BLVD. (NORTH)

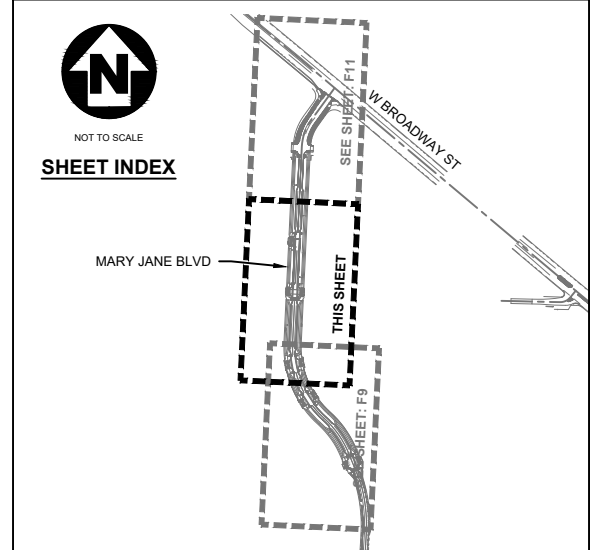
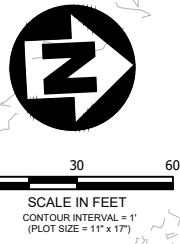
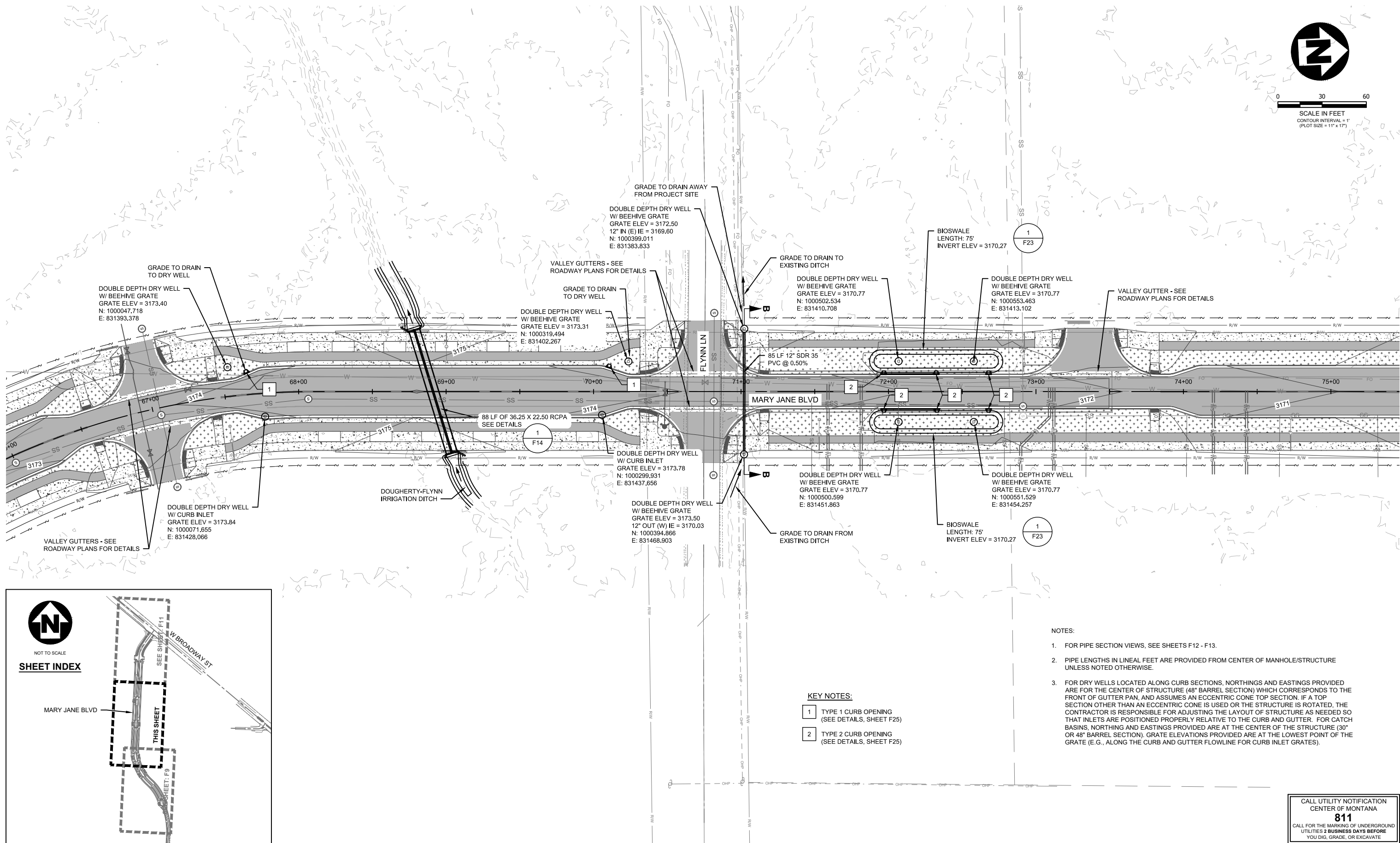
SHEET
OF
F9 F25



- NOTES:
- FOR PIPE SECTION VIEWS, SEE SHEETS F12 - F13.
 - PIPE LENGTHS IN LINEAL FEET ARE PROVIDED FROM CENTER OF MANHOLE/STRUCTURE UNLESS NOTED OTHERWISE.
 - FOR DRY WELLS LOCATED ALONG CURB SECTIONS, NORTHINGS AND EASTINGS PROVIDED ARE FOR THE CENTER OF STRUCTURE (48" BARREL SECTION) WHICH CORRESPONDS TO THE FRONT OF GUTTER PAN, AND ASSUMES AN ECCENTRIC CONE TOP SECTION. IF A TOP SECTION OTHER THAN AN ECCENTRIC CONE IS USED OR THE STRUCTURE IS ROTATED, THE CONTRACTOR IS RESPONSIBLE FOR ADJUSTING THE LAYOUT OF STRUCTURE AS NEEDED SO THAT INLETS ARE POSITIONED PROPERLY RELATIVE TO THE CURB AND GUTTER. FOR CATCH BASINS, NORTHING AND EASTINGS PROVIDED ARE AT THE CENTER OF THE STRUCTURE (30" OR 48" BARREL SECTION). GRATE ELEVATIONS PROVIDED ARE AT THE LOWEST POINT OF THE GRATE (E.G., ALONG THE CURB AND GUTTER FLOWLINE FOR CURB INLET GRATES).

- KEY NOTES:
- TYPE 1 CURB OPENING
(SEE DETAILS, SHEET F25)
 - TYPE 2 CURB OPENING
(SEE DETAILS, SHEET F25)
 - ADJUST GRADING TO FACILITATE TYPE II
CURB OPENING CONSTRUCTION TO INVERT
OF BIOSWALE PER THE STANDARD DETAILS

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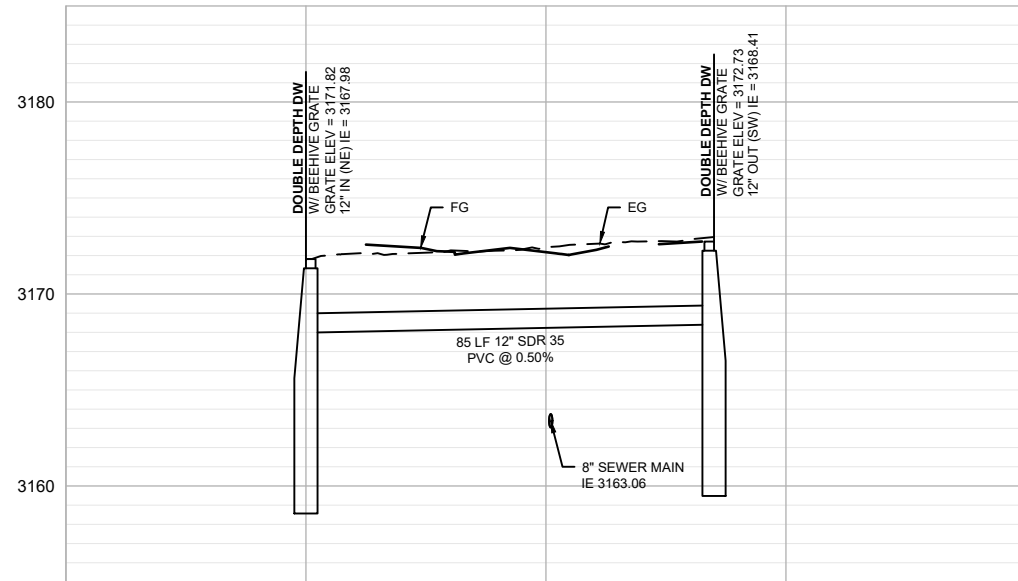


MULLAN BUILD - DRAINAGE - STORMWATER - IRRIGATION
100% - BID PLANS

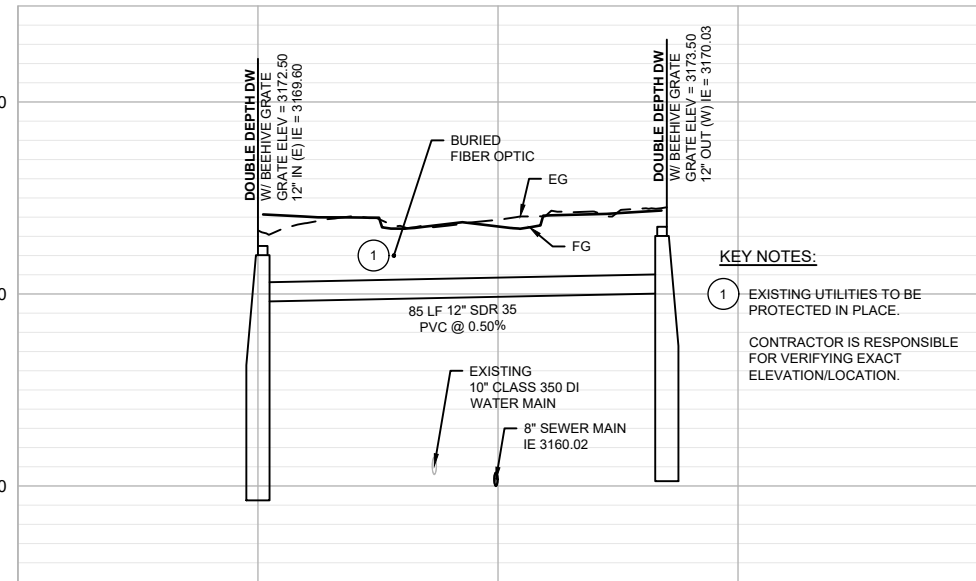
MARY JANE BLVD. (NORTH)

SHEET
OF
F10 F25

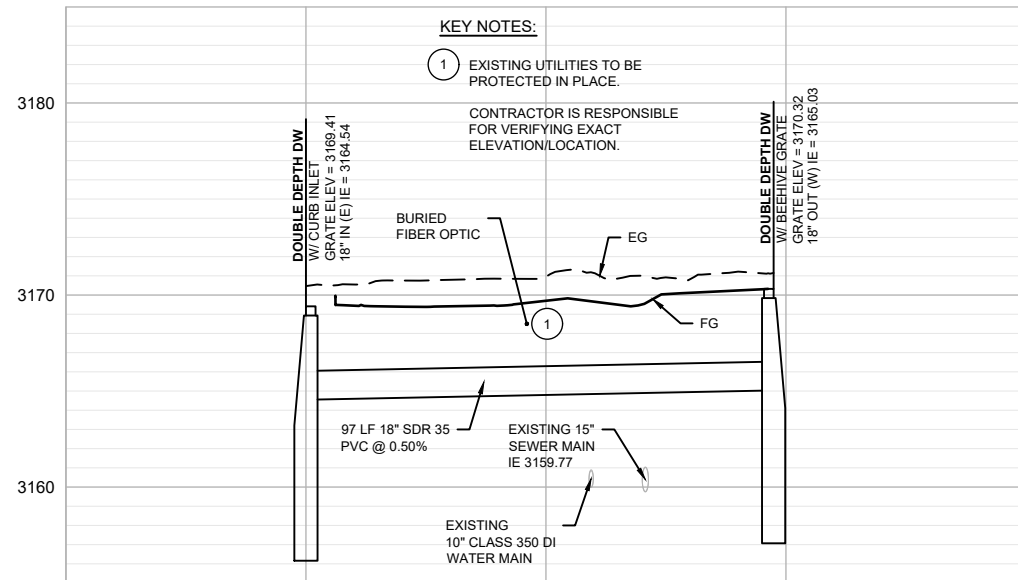
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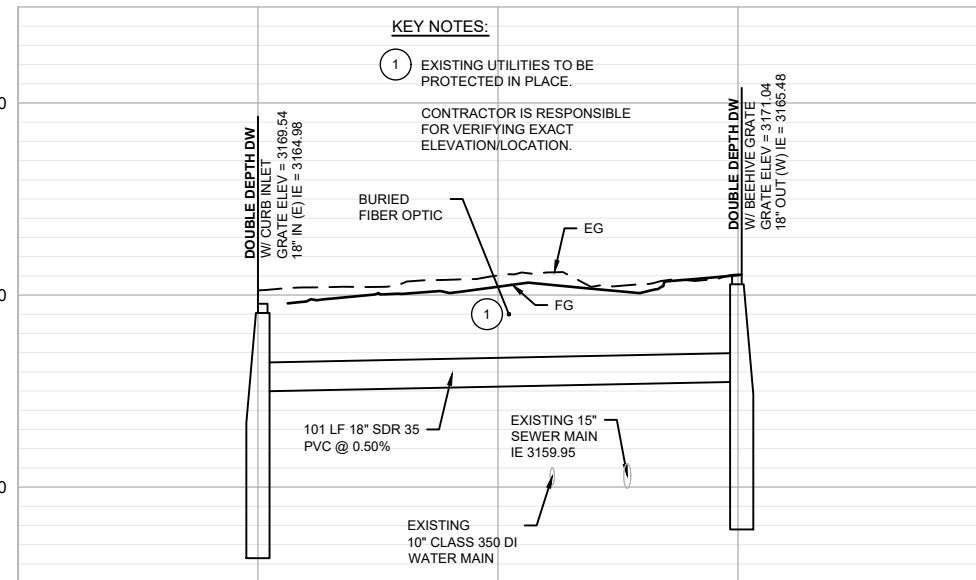
SECTION A-A



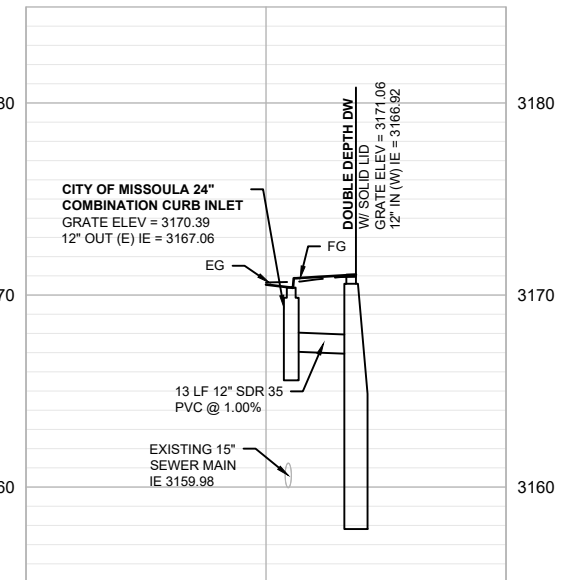
SECTION B-B



SECTION C-C



SECTION D-D



SECTION E-E

CALL UTILITY NOTIFICATION
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0 20 40
HORIZONTAL SCALE IN FEET

ABBREVIATIONS:

EG = EXISTING GROUND
FG = FINISHED GRADE
DW = DRY WELL

NOTES:

1. PIPE LENGTHS IN LINEAL FEET ARE PROVIDED FROM CENTER OF MANHOLE/STRUCTURE UNLESS NOTED OTHERWISE.

REVISION	DATE	DESCRIPTION

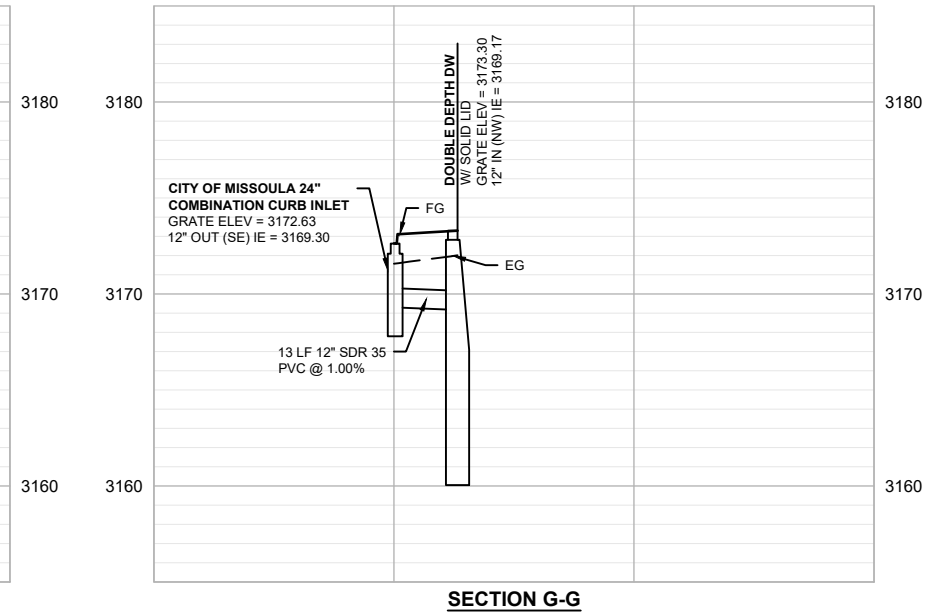
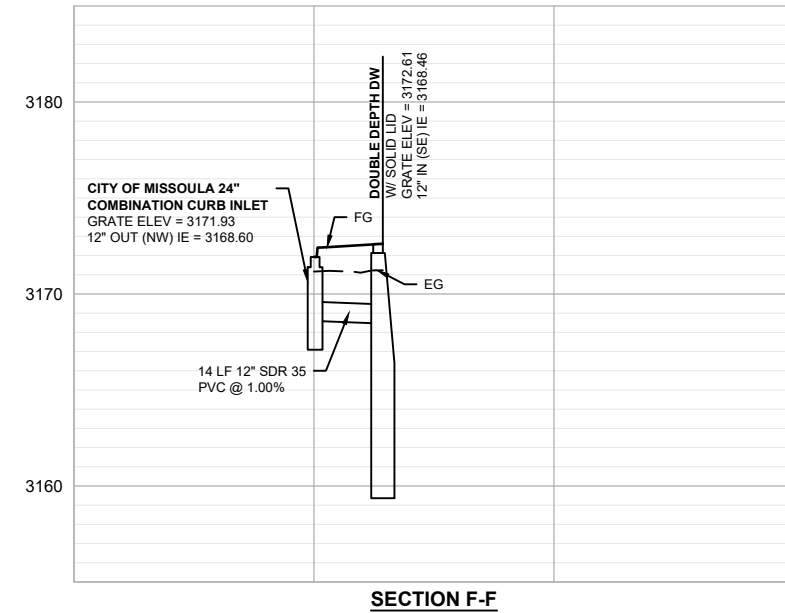
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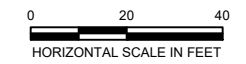
MULLAN BUILD - DRAINAGE - STORMWATER - IRRIGATION
100% - BID PLANS

MARY JANE BLVD. (NORTH) - PIPE SECTIONS

SHEET
OF
F12 F25



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REVISION	DATE	DESCRIPTION
-	-	-

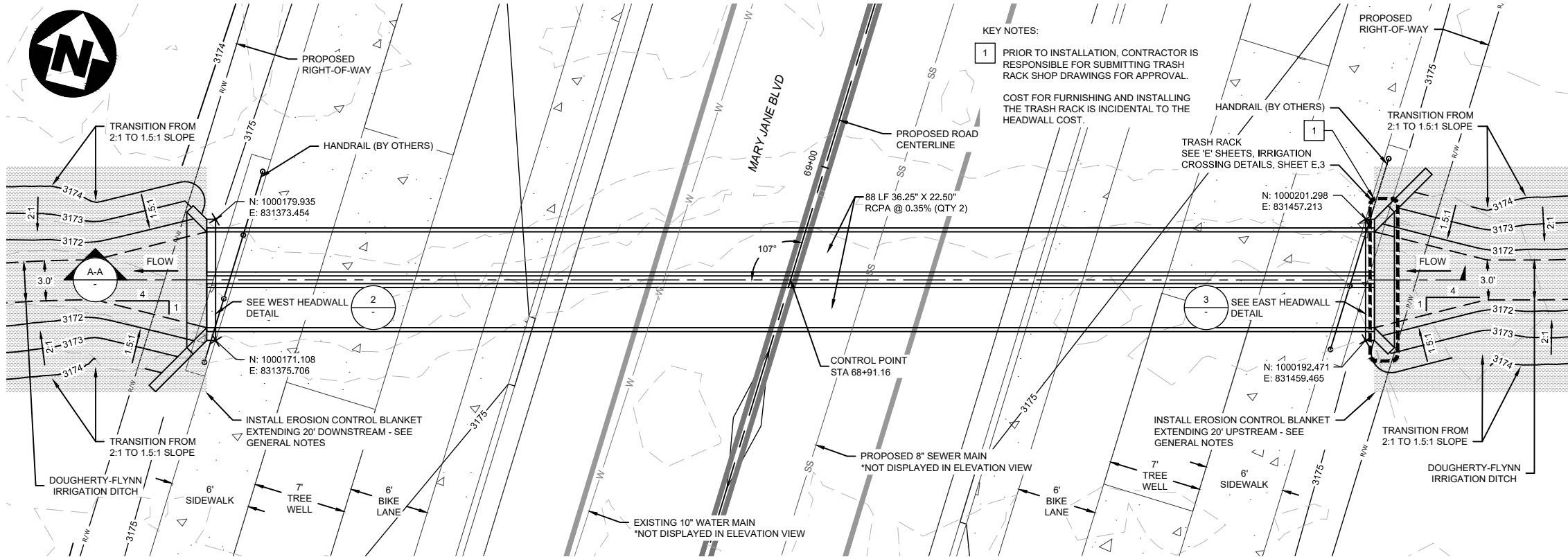
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CHECKED	<u>JLS</u>	SURVEYED	<u>DJ&A P.C.</u>



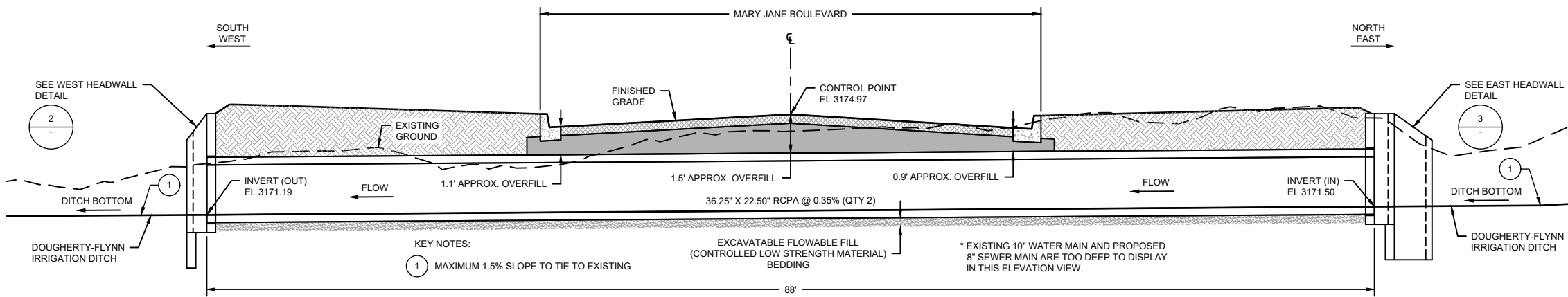
MULLAN BUILD - DRAINAGE - STORMWATER - IRRIGATION
100% - BID PLANS

MARY JANE BLVD. (NORTH) - PIPE SECTIONS

SHEET	OF
F13	F25



MARY JANE BOULEVARD
IRRIGATION DITCH CROSSING - PLAN VIEW
SCALE = 1" = 5'



MARY JANE BOULEVARD
IRRIGATION DITCH CROSSING - ELEVATION VIEW
HORIZ: 1" = 5'
VERT: 1" = 2.5'

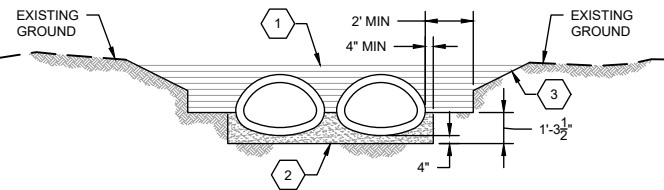
GENERAL NOTES:

- SPACE REINFORCING BARS APPROX 12" ON CENTER EACH WAY THROUGHOUT STRUCTURES. USE CONTINUOUS BARS IN FLOORS AND WALLS WHENEVER POSSIBLE. MINIMUM SPLICE LENGTH SHALL BE 32" FOR #5 BAR.
- FOR VERTICAL BARS EXTENDING INTO THE FLOOR, PROVIDE A MINIMUM HORIZONTAL LEG LENGTH OF 15" FOR #5 BARS, BENT HORIZONTALLY INTO THE FLOOR.
- CHAMFER ALL EXPOSED CORNERS 1".
- REINFORCING STEEL TO BE NOT LESS THAN 1 1/2" TO NEAREST FACE OF CONCRETE.
- TEMPORARY EROSION CONTROL BLANKET (ECB), NAG BIONET C700BN OR EQUIVALENT, SHALL BE INSTALLED WITHIN THE IRRIGATION DITCH EXTENDING BOTH 20' UPSTREAM OF THE EAST HEADWALL, AND DOWNSTREAM OF THE WEST HEADWALL. INSTALL ECBS ACCORDING TO MANUFACTURER'S RECOMMENDATIONS FOR HIGH FLOW CHANNELS, INCLUDING AT TIE-IN TO CONCRETE HEADWALL. ECBS SHALL EXTEND TO THE TOP OF THE CHANNEL BANK ON BOTH SIDES OF THE CHANNEL. COST FOR FURNISHING AND INSTALLING ECBS SHALL BE INCIDENTAL TO THE COST OF THE PIPE.

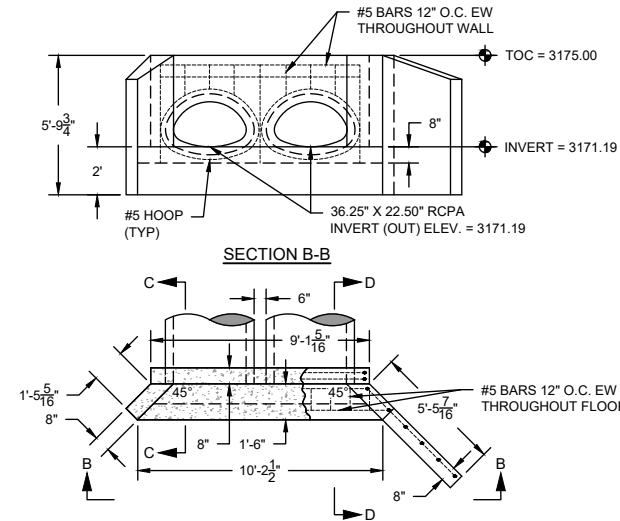
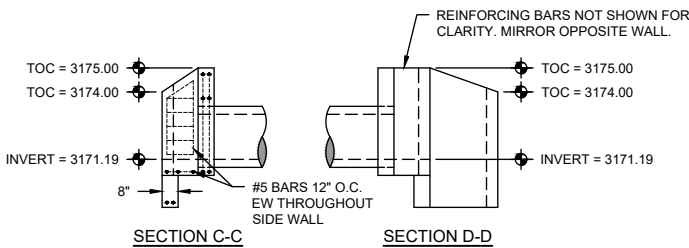
BEDDING DETAIL KEY NOTES:

- USE BACKFILL MATERIALS FREE OF STICKS, SOD, FROZEN SOIL, OR OTHER DELETERIOUS MATERIAL. DO NOT PERMIT STONES, ROCKS, CHUNKS OF BROKEN CONCRETE, OR OTHER MATERIAL LARGER THAN 3" WITHIN 1-FOOT OF THE PIPE TOP. PLACE BACKFILL IN MAXIMUM 6" LOOSE LIFTS AND COMPACT TO A MINIMUM 95% RELATIVE COMPACTION.
 - EXCAVATABLE FLOWABLE FILL (CONTROLLED LOW STRENGTH MATERIAL)
- COST FOR FLOWABLE FILL BEDDING SHALL BE INCIDENTAL TO THE COST OF THE PIPE.

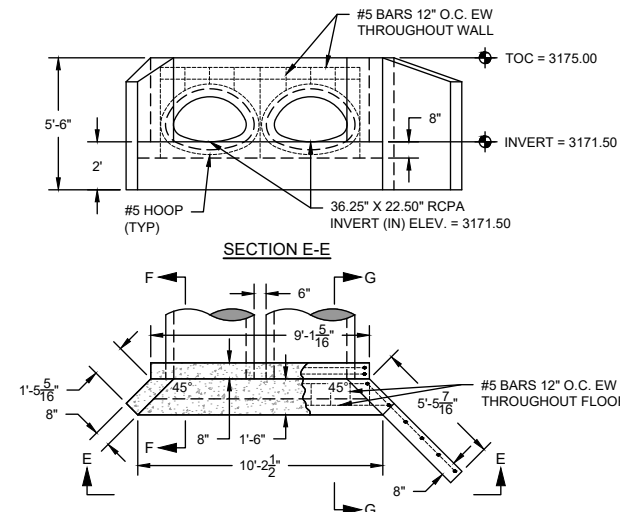
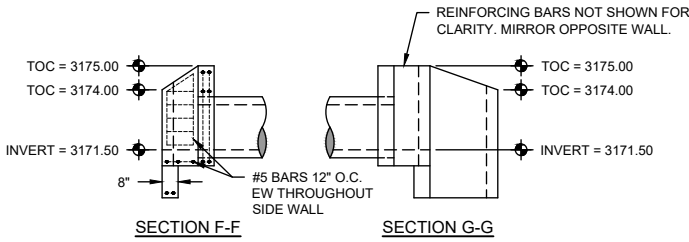
- EXCAVATE A SUFFICIENT AMOUNT TO PROVIDE A SAFE WORKING ENVIRONMENT AND TO ALLOW ACHIEVEMENT OF ALL CULVERT INSTALLATION AND BEDDING AND COMPACTION REQUIREMENTS. SLOPE, BENCH, OR PROVIDE SHORING FOR ALL EXCAVATIONS IN ACCORDANCE WITH THE U.S. DEPARTMENT OF LABOR, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION.



FLOWABLE FILL BEDDING DETAIL
SCALE = 1/4" = 1'



WEST HEADWALL DETAIL (OUTLET)
SCALE = 1/4" = 1'



EAST HEADWALL DETAIL (INLET)
SCALE = 1/4" = 1'

REVISION	DATE	DESCRIPTION

DESIGNER LAS PROJ. NO. 7065
DRAWN JCW DATE 05/05/2021
CHECKED JLS SURVEYED DJ&A P.C.



MULLAN BUILD - DRAINAGE - STORMWATER - IRRIGATION
100% - BID PLANS

MARY JANE BLVD. (NORTH) - IRRIGATION CROSSING

SHEET
OF
F14 F25



0 30 60
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

KEY NOTES:

- 1 TYPE 1 CURB OPENING
(SEE DETAILS, SHEET F25)

SEE MCNETT FLATS SUBDIVISION PLANS,
STAGE IV SUBMITTAL, FOR STORMWATER DESIGN.

ALL STORMWATER STRUCTURES WERE DESIGNED BY
OTHERS, AND THEREFORE, HDR ASSUMES NO
RESPONSIBILITY FOR THE STORMWATER DESIGN.

CONSTRUCTION LIMITS (TYP)

STANDARD DEPTH DRY WELL
W/ BEEHIVE GRATE
GRATE ELEV = 3156.56
N: 998614.862
E: 827694.358

GRADE TO DRAIN
TO DRY WELL

STANDARD DEPTH DRY WELL
W/ CURB INLET
GRATE ELEV = 3157.00
N: 998630.664
E: 827731.343

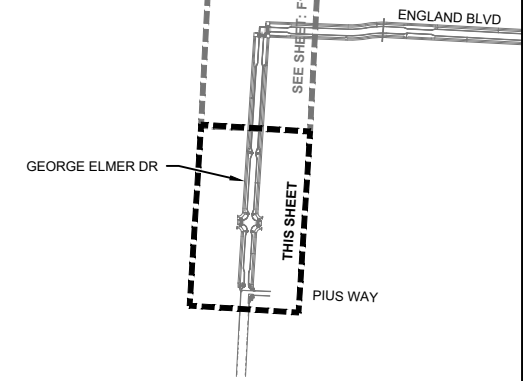
NOTES:

1. FOR DRY WELLS LOCATED ALONG CURB SECTIONS, NORTHINGS AND EASTINGS PROVIDED ARE FOR THE CENTER OF STRUCTURE (48" BARREL SECTION) WHICH CORRESPONDS TO THE FRONT OF GUTTER PAN, AND ASSUMES AN ECCENTRIC CONE TOP SECTION. IF A TOP SECTION OTHER THAN AN ECCENTRIC CONE IS USED OR THE STRUCTURE IS ROTATED, THE CONTRACTOR IS RESPONSIBLE FOR ADJUSTING THE LAYOUT OF STRUCTURE AS NEEDED SO THAT INLETS ARE POSITIONED PROPERLY RELATIVE TO THE CURB AND GUTTER. FOR CATCH BASINS, NORTHING AND EASTINGS PROVIDED ARE AT THE CENTER OF THE STRUCTURE (30" OR 48" BARREL SECTION). GRATE ELEVATIONS PROVIDED ARE AT THE LOWEST POINT OF THE GRATE (E.G., ALONG THE CURB AND GUTTER FLOWLINE FOR CURB INLET GRATES).

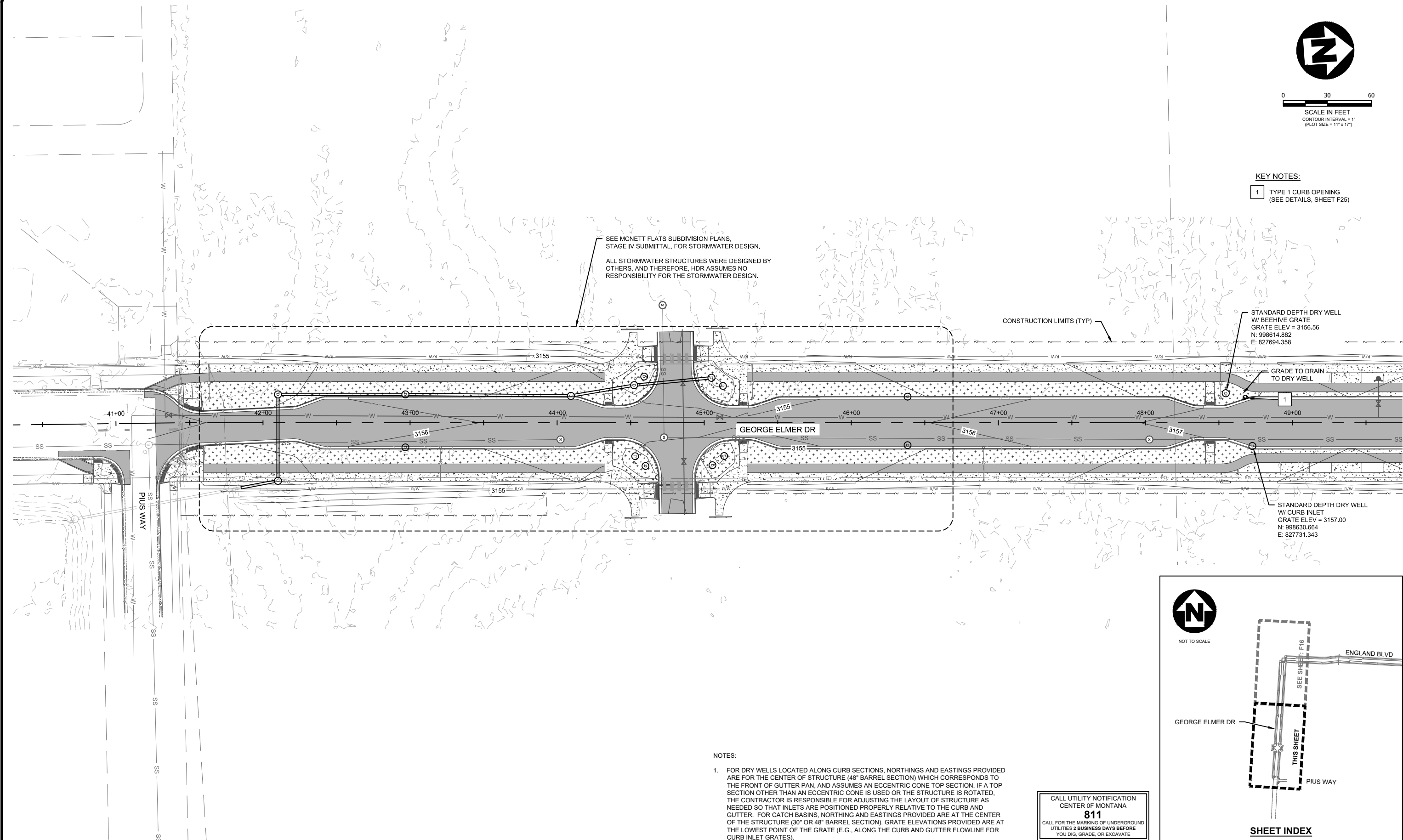
CALL UTILITY NOTIFICATION
CENTER OF MONTANA
811
CALL FOR THE MARKING OF UNDERGROUND
UTILITIES 2 BUSINESS DAYS BEFORE
YOU DIG, GRADE, OR EXCAVATE



NOT TO SCALE



SHEET INDEX



REVISION	DATE	DESCRIPTION

DESIGNER	LAS	PROJ. NO.	7065
DRAWN	JCW	DATE	05/05/2021
CHECKED	JLS	SURVEYED	DJ&A P.C.

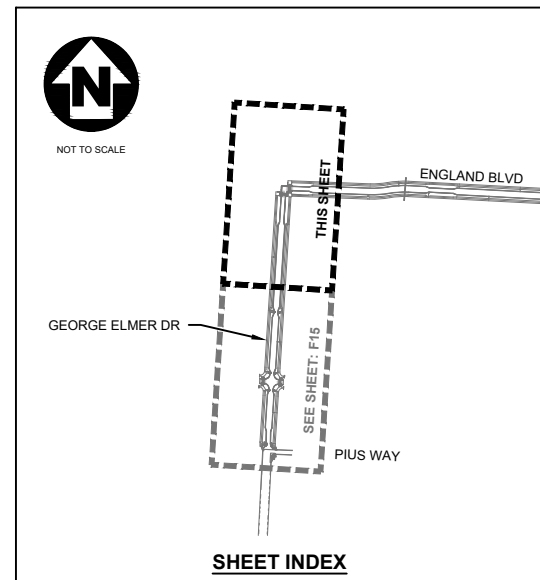


MULLAN BUILD - DRAINAGE - STORMWATER - IRRIGATION
100% - BID PLANS

GEORGE ELMER DRIVE (NORTH)

SHEET
OF
F15 F25

1. FOR PIPE SECTION VIEWS, SEE SHEET F17.
2. PIPE LENGTHS IN LINEAL FEET ARE PROVIDED FROM CENTER OF MANHOLE/STRUCTURE UNLESS NOTED OTHERWISE.
3. FOR DRY WELLS LOCATED ALONG CURB SECTIONS, NORTHINGS AND EASTINGS PROVIDED ARE FOR THE CENTER OF STRUCTURE (48" BARREL SECTION) WHICH CORRESPONDS TO THE FRONT OF GUTTER PAN, AND ASSUMES AN ECCENTRIC CONE TOP SECTION. IF A TOP SECTION OTHER THAN AN ECCENTRIC CONE IS USED OR THE STRUCTURE IS ROTATED, THE CONTRACTOR IS RESPONSIBLE FOR ADJUSTING THE LAYOUT OF STRUCTURE AS NEEDED SO THAT INLETS ARE POSITIONED PROPERLY RELATIVE TO THE CURB AND GUTTER. FOR CATCH BASINS, NORTHING AND EASTINGS PROVIDED ARE AT THE CENTER OF THE STRUCTURE (30" OR 48" BARREL SECTION). GRATE ELEVATIONS PROVIDED ARE AT THE LOWEST POINT OF THE GRATE (E.G., ALONG THE CURB AND GUTTER FLOWLINE FOR CURB INLET GRATES).



DESIGNER	<u>LAS</u>	PROJ. NO.	<u>7065</u>
DRAWN	<u>JCW</u>	DATE	<u>05/05/2021</u>
CHECKED	<u>JLS</u>	SURVEYED	<u>DJ&A P.C.</u>

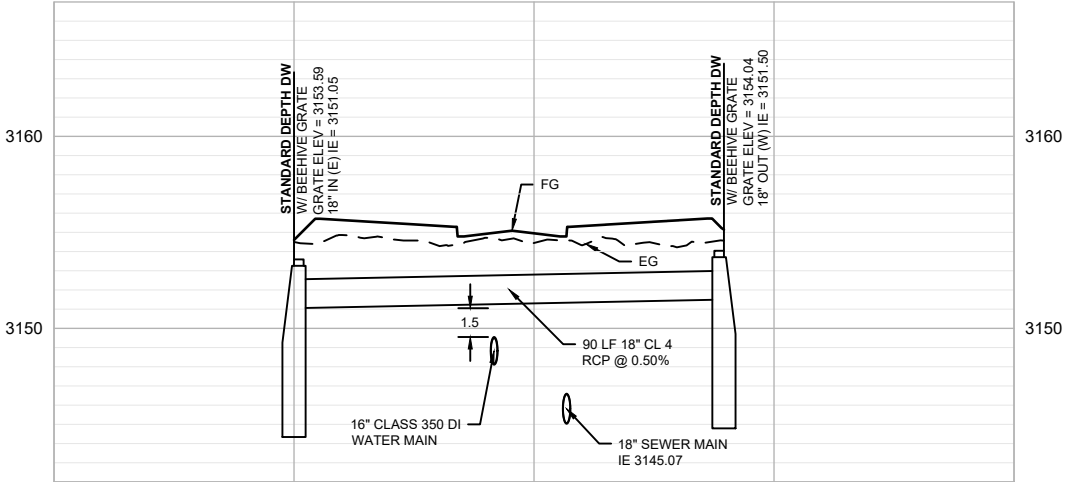


MULLAN BUILD - DRAINAGE - STORMWATER - IRRIGATION
100% - BID PLANS

GEORGE ELMER DRIVE (NORTH)

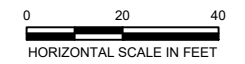
CALL UTILITY NOTIFICATION
CENTER OF MONTANA
811
CALL FOR THE MARKING OF UNDERGROUND
UTILITIES **2 BUSINESS DAYS BEFORE**
YOU DIG, GRADE, OR EXCAVATE

SHEET
OF
16 F25



SECTION A-A

CALL UTILITY NOTIFICATION
CENTER OF MONTANA
811
CALL FOR THE MARKING OF UNDERGROUND
UTILITIES 2 BUSINESS DAYS BEFORE
YOU DIG, GRADE, OR EXCAVATE



ABBREVIATIONS:
EG = EXISTING GROUND
FG = FINISHED GRADE
DW = DRY WELL

- NOTES:
- PIPE LENGTHS IN LINEAL FEET ARE PROVIDED FROM CENTER OF MANHOLE/STRUCTURE UNLESS NOTED OTHERWISE.

REVISION	DATE	DESCRIPTION
-	-	-

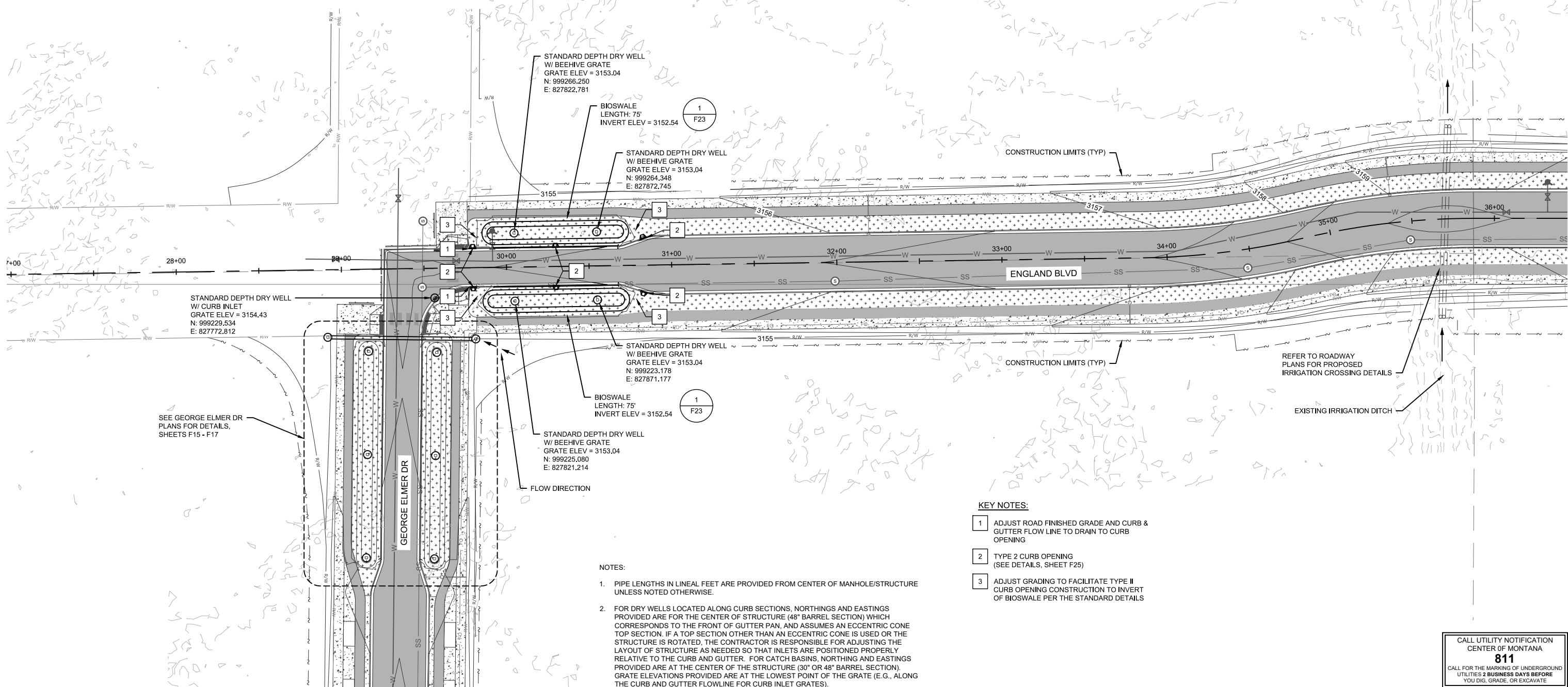
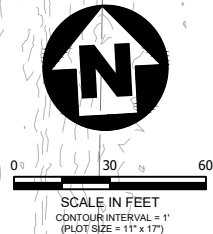
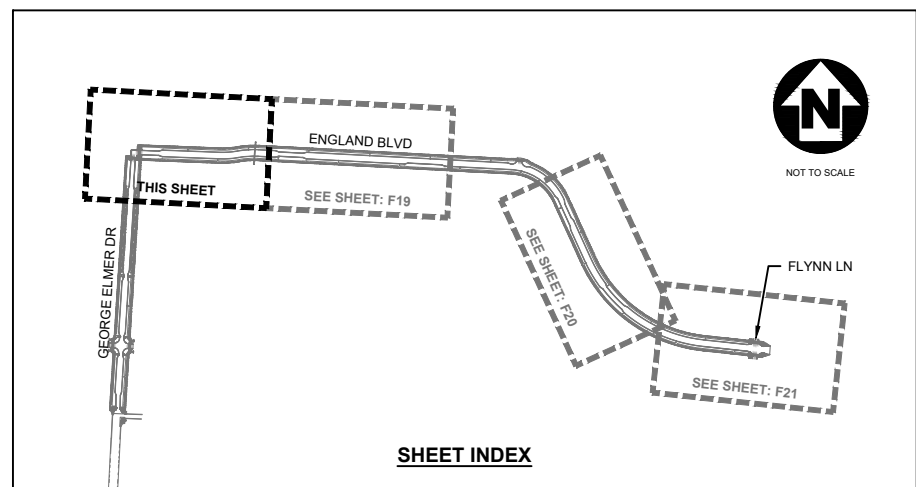
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DRAWN	JCW	DATE	05/05/2021
CHECKED	JLS	SURVEYED	DJ&A P.C.



MULLAN BUILD - DRAINAGE - STORMWATER - IRRIGATION
100% - BID PLANS

GEORGE ELMER DRIVE (NORTH) - PIPE SECTIONS

SHEET	OF
F17	F25



- KEY NOTES:**
- 1 ADJUST ROAD FINISHED GRADE AND CURB & GUTTER FLOW LINE TO DRAIN TO CURB OPENING
 - 2 TYPE 2 CURB OPENING (SEE DETAILS, SHEET F25)
 - 3 ADJUST GRADING TO FACILITATE TYPE II CURB OPENING CONSTRUCTION TO INVERT OF BIOSWALE PER THE STANDARD DETAILS

- NOTES:**
- 1. PIPE LENGTHS IN LINEAL FEET ARE PROVIDED FROM CENTER OF MANHOLE/STRUCTURE UNLESS NOTED OTHERWISE.
 - 2. FOR DRY WELLS LOCATED ALONG CURB SECTIONS, NORTHINGS AND EASTINGS PROVIDED ARE FOR THE CENTER OF STRUCTURE (48" BARREL SECTION) WHICH CORRESPONDS TO THE FRONT OF GUTTER PAN, AND ASSUMES AN ECCENTRIC CONE TOP SECTION. IF A TOP SECTION OTHER THAN AN ECCENTRIC CONE IS USED OR THE STRUCTURE IS ROTATED, THE CONTRACTOR IS RESPONSIBLE FOR ADJUSTING THE LAYOUT OF STRUCTURE AS NEEDED SO THAT INLETS ARE POSITIONED PROPERLY RELATIVE TO THE CURB AND GUTTER. FOR CATCH BASINS, NORTHING AND EASTINGS PROVIDED ARE AT THE CENTER OF THE STRUCTURE (30" OR 48" BARREL SECTION). GRATE ELEVATIONS PROVIDED ARE AT THE LOWEST POINT OF THE GRATE (E.G., ALONG THE CURB AND GUTTER FLOWLINE FOR CURB INLET GRATES).

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REVISION	DATE	DESCRIPTION

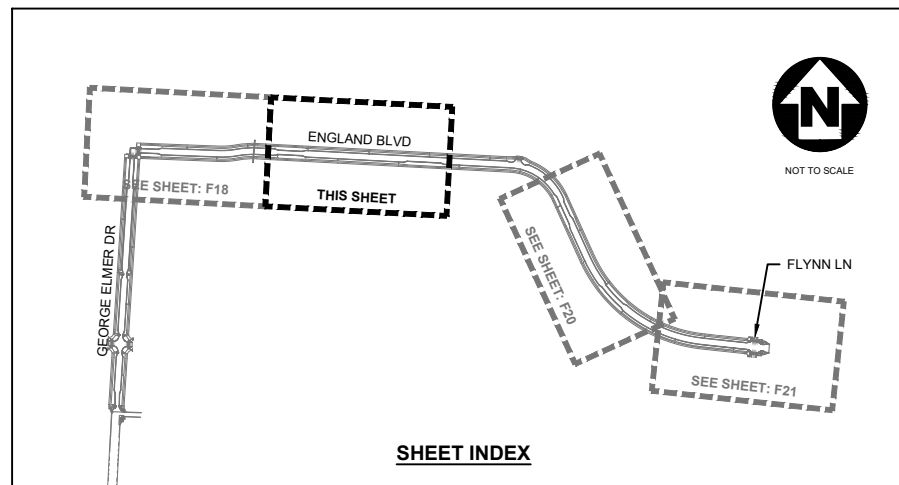
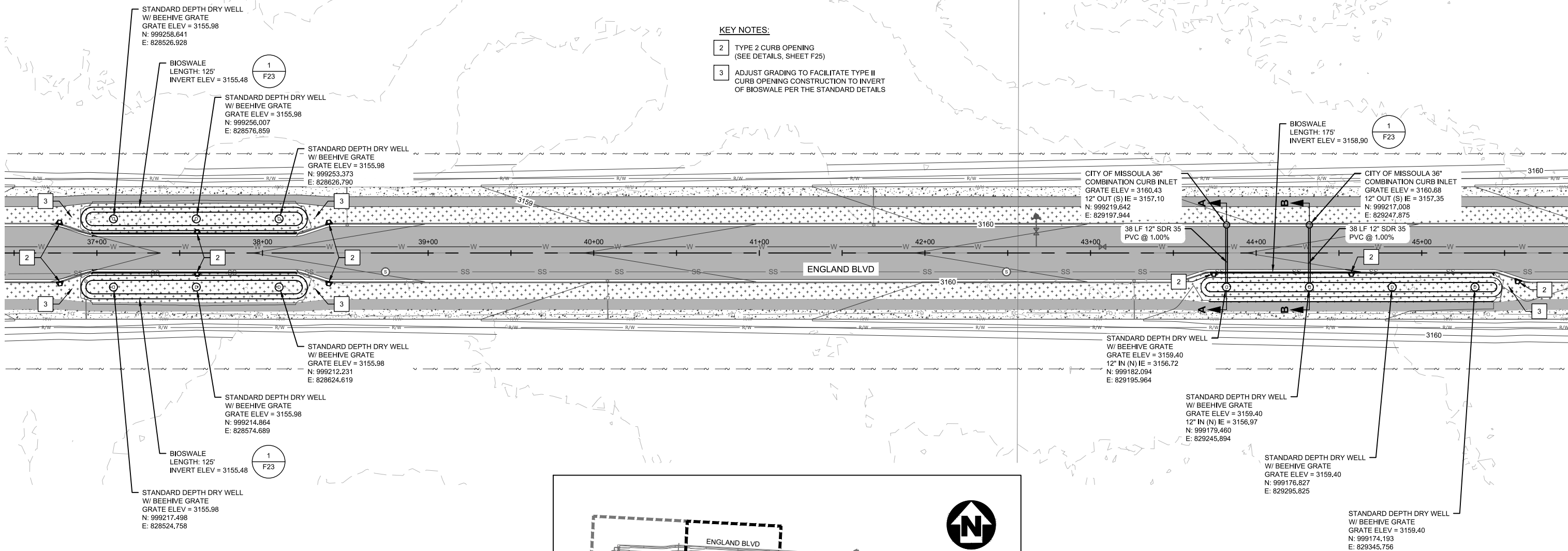
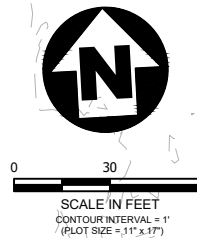
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MULLAN BUILD - DRAINAGE - STORMWATER - IRRIGATION
100% - BID PLANS

ENGLAND BLVD.

SHEET
OF
F18 F25



REVISION	DATE	DESCRIPTION

DESIGNER	LAS	PROJ. NO.	7065
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MULLAN BUILD - DRAINAGE - STORMWATER - IRRIGATION
100% - BID PLANS

ENGLAND BLVD.

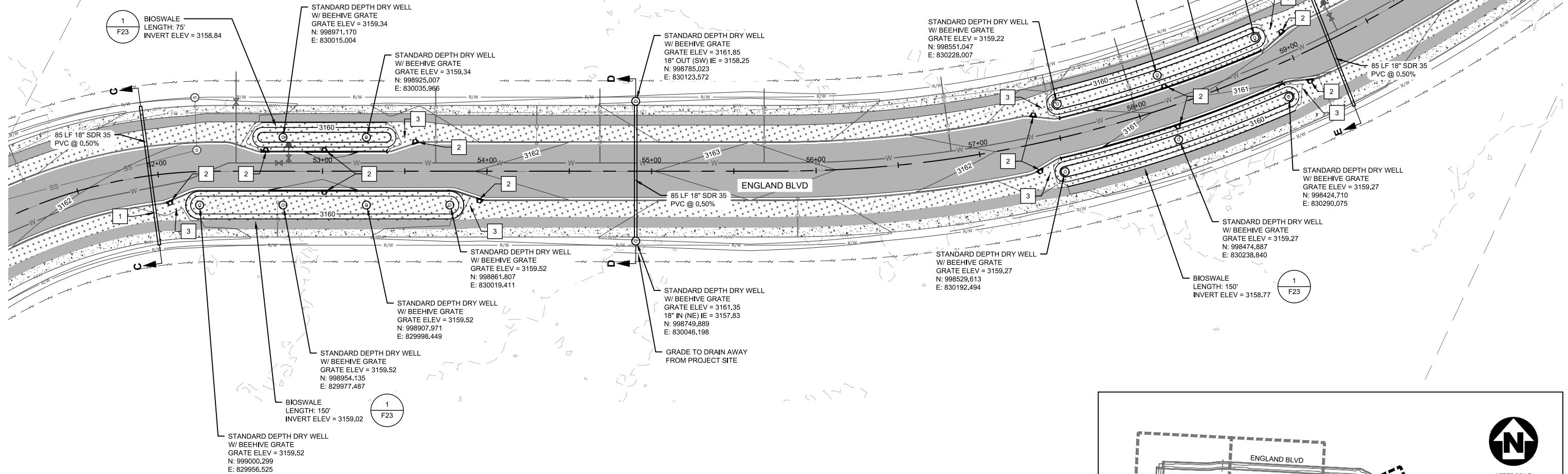
SHEET
OF
F19 F25



0 30 60
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

KEY NOTES:

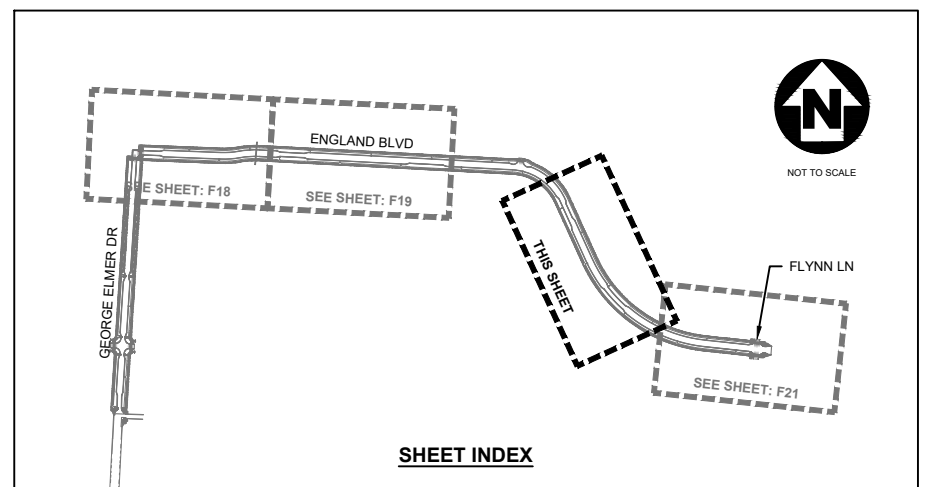
- 1 VERIFY PIPE LOCATION AND ELEVATIONS WITH THE OWNER PRIOR TO INSTALLATION. CAP ENDS WITH REMOVABLE WATERTIGHT END CAPS (ONE ON BOTH ENDS). BURY BOTH PIPE ENDS WITH LOOSE FILL MATERIAL TO THE PROPOSED GRADE. PROVIDE PERMANENT VISIBLE STAKES CLEARLY MARKING BOTH PIPE ENDS. PIPE END CAPS ARE NOT MEASURED SEPARATELY FOR PAYMENT. INCLUDE THE COST FOR PIPE END CAPS IN THE UNIT PRICE COST FOR THE RESPECTIVE PIPE.
- 2 TYPE 2 CURB OPENING (SEE DETAILS, SHEET F25)
- 3 ADJUST GRADING TO FACILITATE TYPE II CURB OPENING CONSTRUCTION TO INVERT OF BIOSWALE PER THE STANDARD DETAILS



NOTES:

1. FOR PIPE SECTION VIEWS, SEE SHEET F22.
2. PIPE LENGTHS IN LINEAL FEET ARE PROVIDED FROM CENTER OF MANHOLE/STRUCTURE UNLESS NOTED OTHERWISE.

CALL UTILITY NOTIFICATION CENTER OF MONTANA
811
CALL FOR THE MARKING OF UNDERGROUND UTILITIES 2 BUSINESS DAYS BEFORE YOU DIG, GRADE, OR EXCAVATE



REVISION	DATE	DESCRIPTION

DESIGNER	LAS	PROJ. NO.	7065
DRAWN	JCW	DATE	05/05/2021
CHECKED	JLS	SURVEYED	DJ&A P.C.



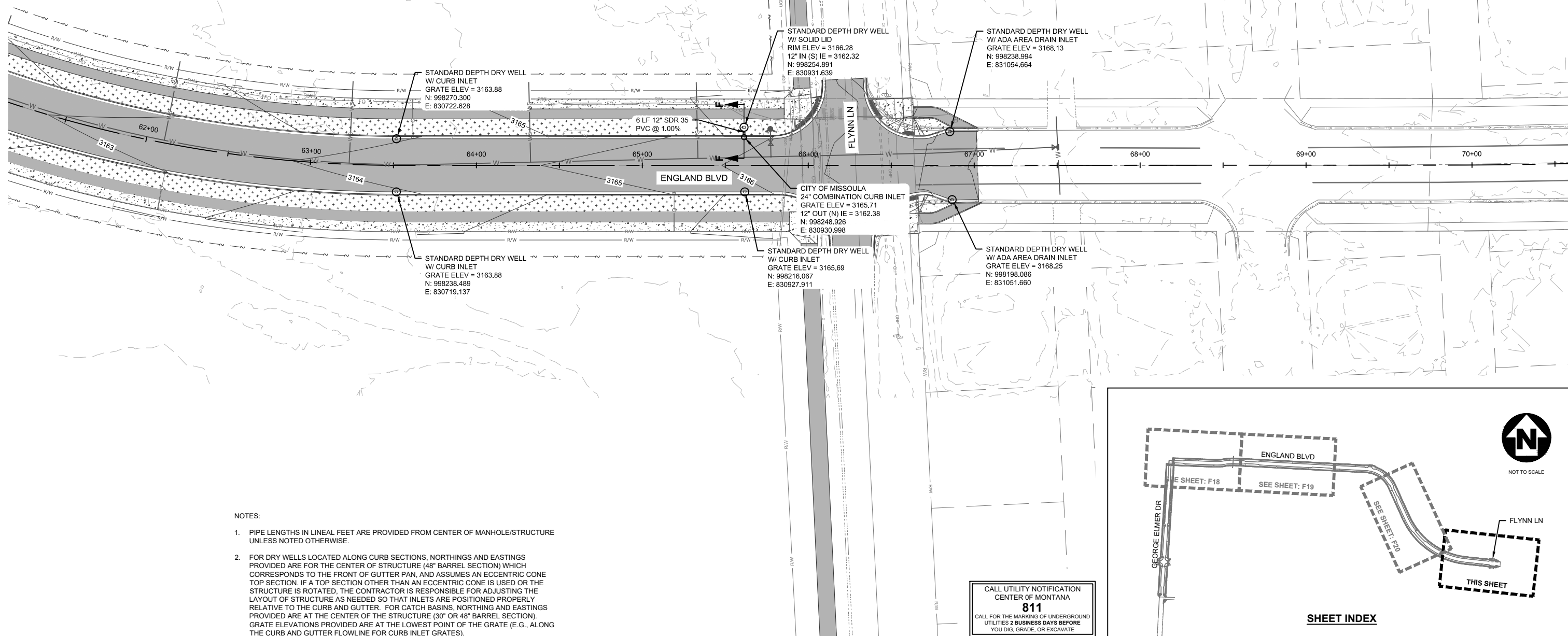
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100% - BID PLANS

ENGLAND BLVD.

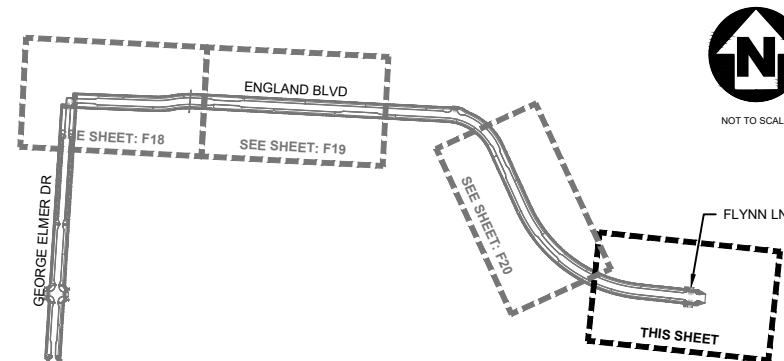
SHEET
OF
F20 F25



0 30 60
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")



CALL UTILITY NOTIFICATION
CENTER OF MONTANA
811
CALL FOR THE MARKING OF UNDERGROUND
UTILITIES 2 BUSINESS DAYS BEFORE
YOU DIG, GRADE, OR EXCAVATE



SHEET INDEX

REVISION	DATE	DESCRIPTION

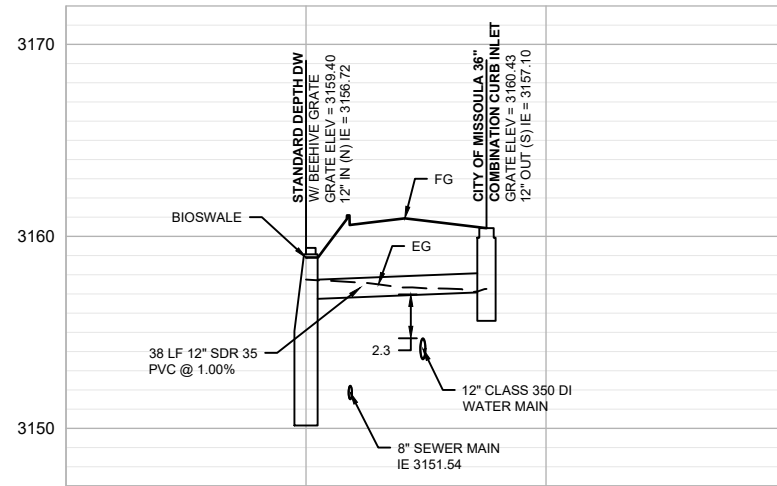
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DRAWN JCW DATE 05/05/2021
CHECKED JLS SURVEYED DJ&A P.C.



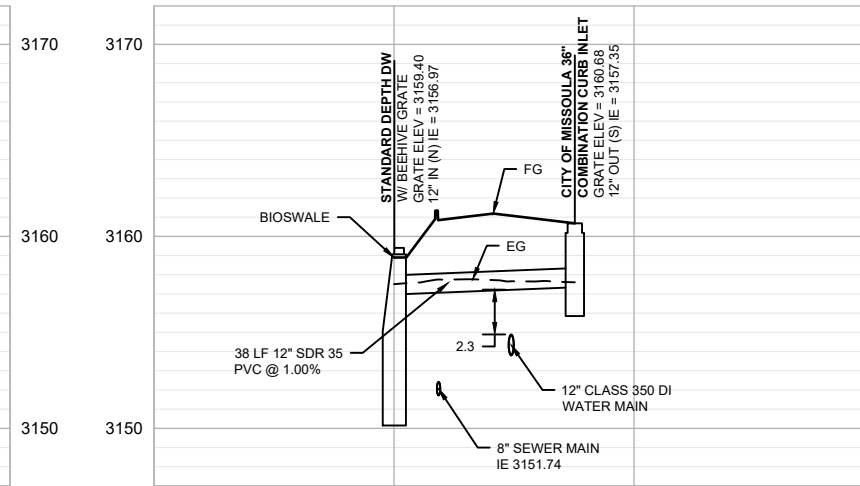
MULLAN BUILD - DRAINAGE - STORMWATER - IRRIGATION
100% - BID PLANS

ENGLAND BLVD.

SHEET
OF
F21 F25



SECTION A-A



SECTION B-B

CALL UTILITY NOTIFICATION
CENTER OF MONTANA
811
CALL FOR THE MARKING OF UNDERGROUND
UTILITIES 2 BUSINESS DAYS BEFORE
YOU DIG, GRADE, OR EXCAVATE

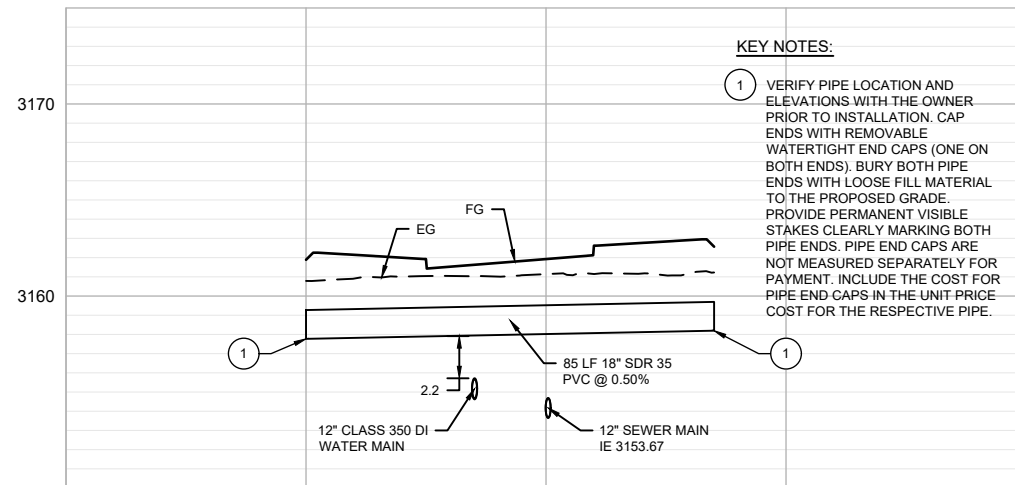


ABBREVIATIONS:

EG = EXISTING GROUND
FG = FINISHED GRADE
DW = DRY WELL

NOTES:

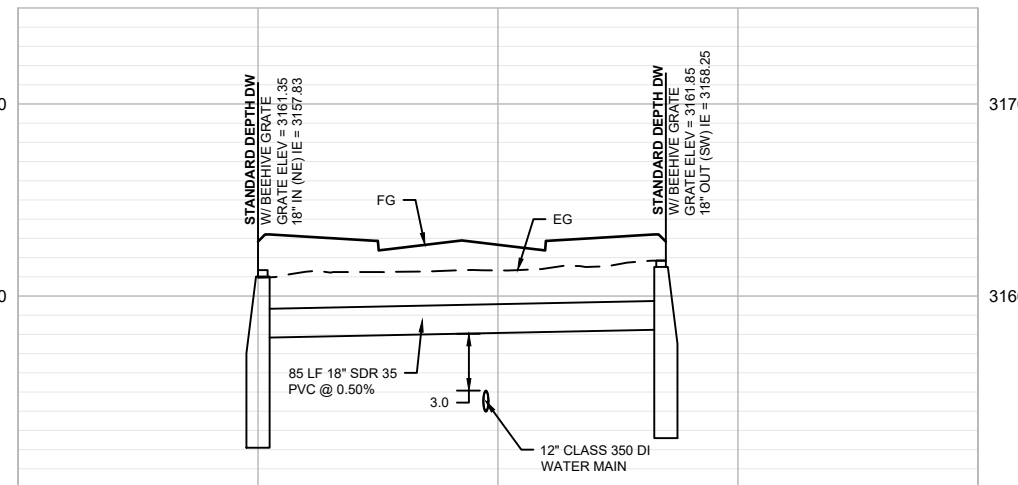
- PIPE LENGTHS IN LINEAL FEET ARE PROVIDED FROM CENTER OF MANHOLE/STRUCTURE UNLESS NOTED OTHERWISE.



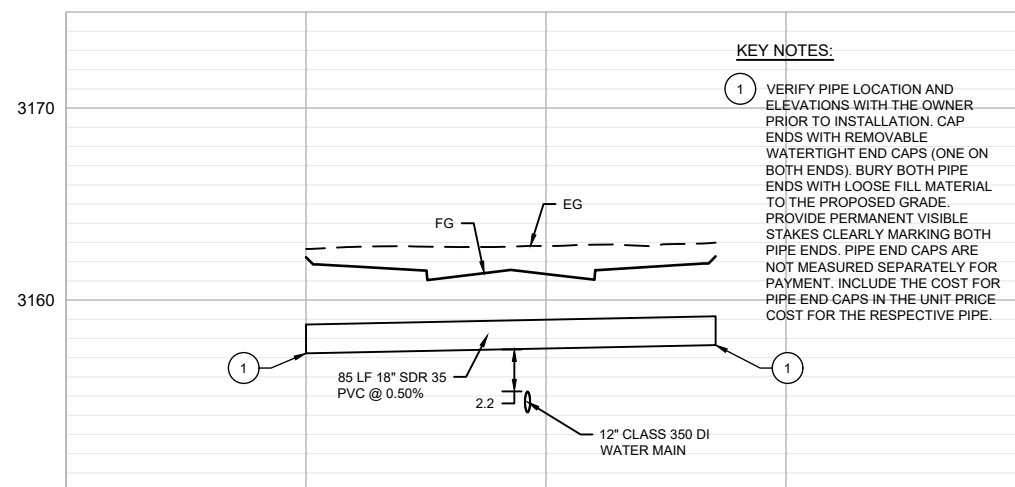
SECTION C-C

KEY NOTES:

- VERIFY PIPE LOCATION AND ELEVATIONS WITH THE OWNER PRIOR TO INSTALLATION. CAP ENDS WITH REMOVABLE WATERTIGHT END CAPS (ONE ON BOTH ENDS). BURY BOTH PIPE ENDS WITH LOOSE FILL MATERIAL TO THE PROPOSED GRADE. PROVIDE PERMANENT VISIBLE STAKES CLEARLY MARKING BOTH PIPE ENDS. PIPE END CAPS ARE NOT MEASURED SEPARATELY FOR PAYMENT. INCLUDE THE COST FOR PIPE END CAPS IN THE UNIT PRICE COST FOR THE RESPECTIVE PIPE.



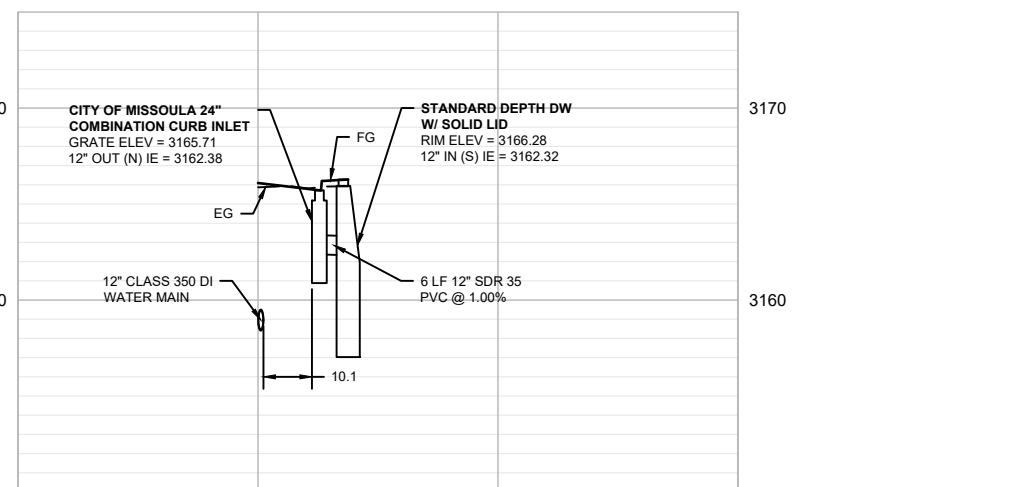
SECTION D-D



SECTION E-E

KEY NOTES:

- VERIFY PIPE LOCATION AND ELEVATIONS WITH THE OWNER PRIOR TO INSTALLATION. CAP ENDS WITH REMOVABLE WATERTIGHT END CAPS (ONE ON BOTH ENDS). BURY BOTH PIPE ENDS WITH LOOSE FILL MATERIAL TO THE PROPOSED GRADE. PROVIDE PERMANENT VISIBLE STAKES CLEARLY MARKING BOTH PIPE ENDS. PIPE END CAPS ARE NOT MEASURED SEPARATELY FOR PAYMENT. INCLUDE THE COST FOR PIPE END CAPS IN THE UNIT PRICE COST FOR THE RESPECTIVE PIPE.



SECTION F-F

REVISION	DATE	DESCRIPTION

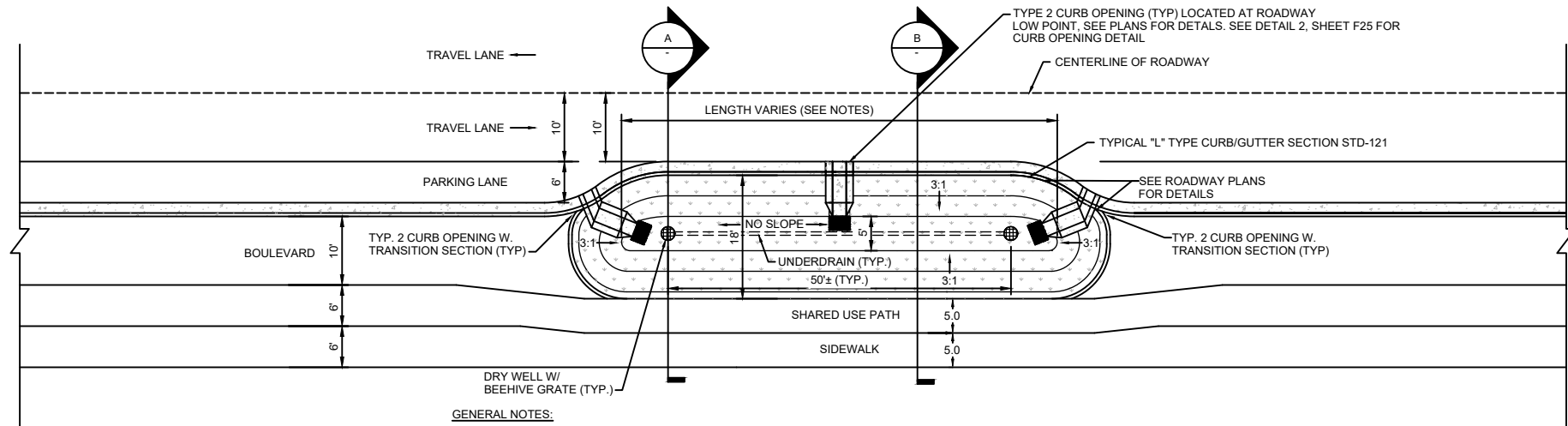
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DRAWN JCW DATE 05/05/2021
CHECKED JLS SURVEYED DJ&A P.C.



MULLAN BUILD - DRAINAGE - STORMWATER - IRRIGATION
100% - BID PLANS

ENGLAND BLVD. - PIPE SECTIONS

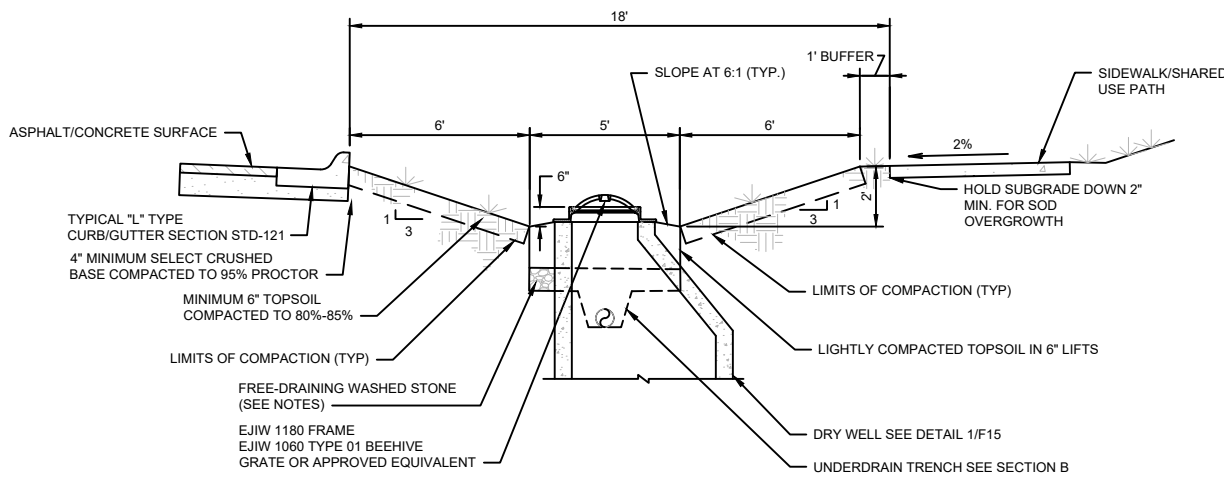
SHEET
OF
F22 F25



GENERAL NOTES:

- 1. BIOSWALES SHALL BE IN ACCORDANCE WITH CITY STD-620, EXCEPT AS MODIFIED HEREIN.
- 2. BIOSWALE TYPICAL PLAN AND SECTION REPRESENT TYPICAL BIOSWALE DESIGN. SEE PLAN SHEETS FOR SPECIFIC DETAILS ON BIOSWALES, INCLUDING LOCATIONS, LENGTHS, ELEVATIONS, NUMBER OF DRY WELLS, ETC.
- 3. BIOSWALES INVERTS SHOULD BE CONSTRUCTED LEVEL (NO SLOPE) AT THE ELEVATIONS PROVIDED IN THE PLAN SHEETS.
- 4. BIOSWALE LENGTHS IDENTIFIED IN THE PLAN SHEETS AND PROVIDED FOR THE BASIS OF MEASUREMENT AND PAYMENT ARE MEASURED ALONG THE INVERT OF THE BIOSWALES.

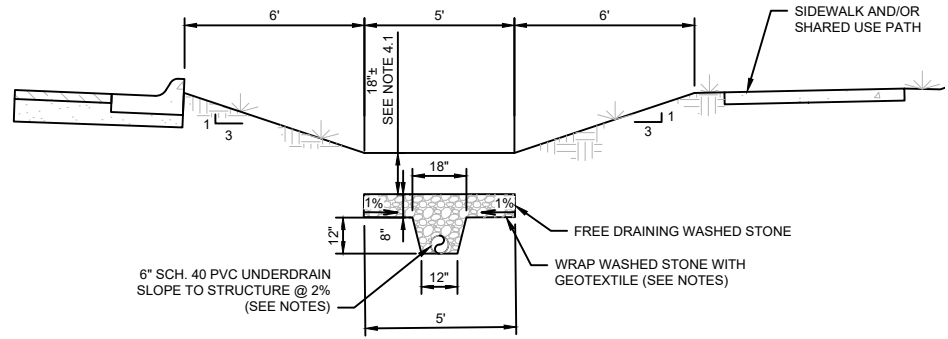
1
-
NTS
TYPICAL BIOSWALE PLAN



GENERAL NOTES:

- 1. DRY WELLS SHALL BE INSTALLED A MINIMUM OF 8 FT FROM THE NEAREST INLET TO PREVENT DIRECT INFLOW INTO THE OVERFLOW GRATE.

A
-
NTS
TYPICAL BIOSWALE SECTION



B
-
NTS
UNDERDRAIN TRENCH SECTION

BIOSWALE NOTES:

- 1. APPLY APPROPRIATE EROSION CONTROL MEASURES TO MINIMIZE EROSION DURING CONSTRUCTION.
- 2. IF USED AS A CONSTRUCTION STORMWATER MANAGEMENT BMP, BIOSWALES SHOULD BE DEWATERED, DREDGED, AND REGRADED PRIOR TO POST-CONSTRUCTION IMPLEMENTATION.
- 3. UNDERDRAIN PIPE SHALL BE 6" ASTM D1785-12 SCHEDULE 40 SLOTTED PVC PIPE.
 - 3.1. SLOTS SHALL BE CUT PERPENDICULAR TO THE LONG AXIS OF THE PIPE, 0.04" x 1" LONG, AND SPACED LONGITUDINALLY 1/4" APART. SLOTS SHOULD BE ARRANGED IN TWO ROWS SPACED ON 45-DEGREE CENTERS AND COVER ONE-HALF OF THE CIRCUMFERENCE OF THE PIPE.
 - 3.2. INSTALL WITH SLOTS ORIENTED ON THE BOTTOM OF THE PIPE.
 - 3.3. UNDERDRAIN PIPE SHALL NOT BE WRAPPED IN FILTER FABRIC.
 - 3.4. SLOPE UNDERDRAIN PIPES AT 2% TO THE NEAREST DRY WELL (STRUCTURE).
 - 3.5. FOR UNDERDRAIN PIPING CONNECTIONS TO DRY WELL, CONNECTIONS SHALL BE WATERTIGHT CONNECTIONS IN ACCORDANCE WITH CITY OF MISSOULA STANDARDS FOR MANHOLES.
- 4. FREE-DRAINING ANGULAR OR CRUSHED WASHED STONE FOR UNDERDRAIN TRENCHES SHALL BE 3/4"-2" DIAMETER MATERIAL AND SURROUNDED WITH TENCATE MIRAFI (R) RSI SERIES GEOTEXTILE OR APPROVED EQUIVALENT - TOP, BOTTOM, AND ALL SIDES TO PREVENT SOIL CONTAMINATION - OVERLAP SEAMS AND SECURE IN PLACE.
 - 4.1. DEPTH BELOW BIOSWALE INVERTS SHALL BE 18" ± 3". CONSTRUCT UNDERDRAIN TRENCH AND PLACE WASHED STONE TO MATCH THE UNDERDRAIN PIPE SLOPE (2%).
- 5. BIOSWALES BOTTOM SHALL NOT BE COMPACTED. IF COMPACTION OCCURS RIP COMPACTED SURFACE TO A DEPTH OF 18 INCHES. THE WORK ASSOCIATED WITH THIS IS CONSIDERED TO BE SUBSIDIARY TO THE COST OF CONSTRUCTING THE BIOSWALES, AND NO ADDITIONAL PAYMENT WILL BE MADE FOR THIS WORK
- 6. SEED BIOSWALES (SIDE SLOPES, BOTTOM, AND BUFFER) AS FOLLOWS:
 - 6.1. BIOSWALES SHALL BE HYDROSEEDDED AND HYDROMULCHED.
 - 6.2. SEED MIXTURE FOR BIOSWALES SHALL BE DRYLAND SEED MIXTURE IN ACCORDANCE WITH THE LANDSCAPE PLANS AND CITY OF MISSOULA PARK AND RECREATION DESIGN GUIDE.
 - 6.3. EROSION CONTROL BLANKET (ECB), NAG S75BN OR EQUIVALENT, SHALL BE INSTALLED FOR BIOSWALES AFTER SEEDING. INSTALL ECBS ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

REVISION	DATE	DESCRIPTION
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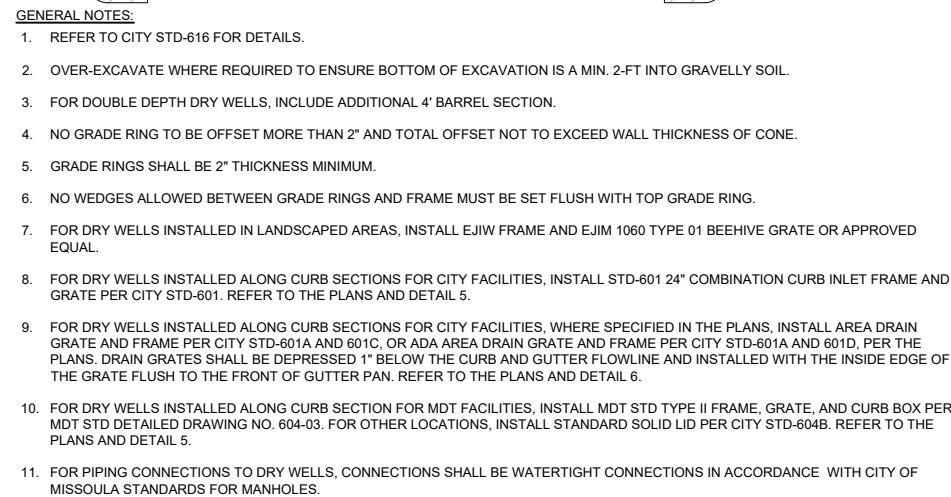
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DRAWN	MKW	DATE	05/05/2021
CHECKED	JLS	SURVEYED	DJ&A P.C.



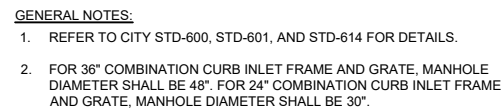
MULLAN BUILD - DRAINAGE - STORMWATER - IRRIGATION
100% - BID PLANS

BIOSWALE AREA PLAN & SECTION

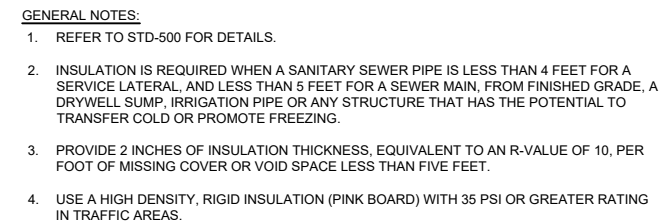
SHEET	OF
F23	F25



2
- MDT TYPE II STANDARD CURB INLET
NTS



CITY OF MISSOULA
STANDARD CATCH BASIN



SANITARY SEWER SERVICE AND MAIN INSULATION REQUIREMENTS

5
-
NTS

DRY WELL WITH CURB INLET

6
-
NTS

DRY WELL WITH AREA INLET

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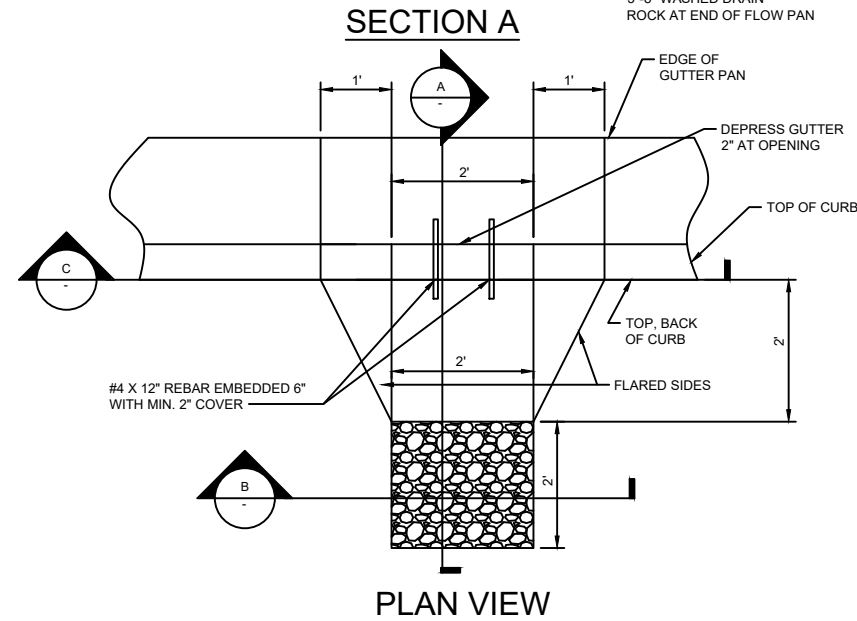
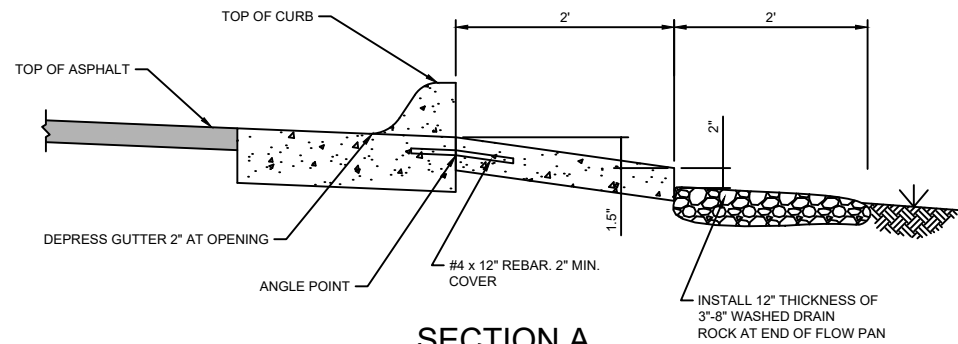
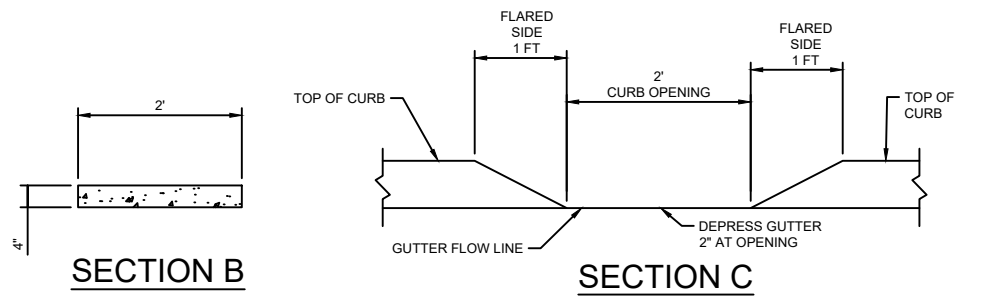
DESIGNER LAS PROJ. NO. 7065
DRAWN MKW DATE 05/05/2021
CHECKED JLS SURVEYED DJ&A, P.C.



MULLAN BUILD - DRAINAGE - STORMWATER - IRRIGATION
100% - BID PLANS

STANDARD STORMWATER DETAILS - 1

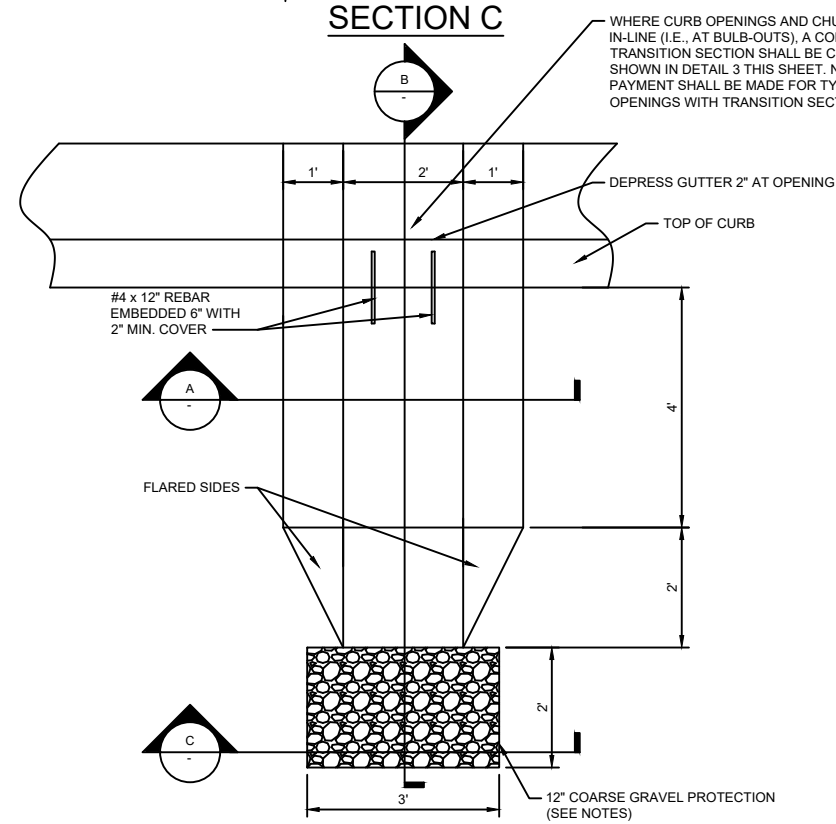
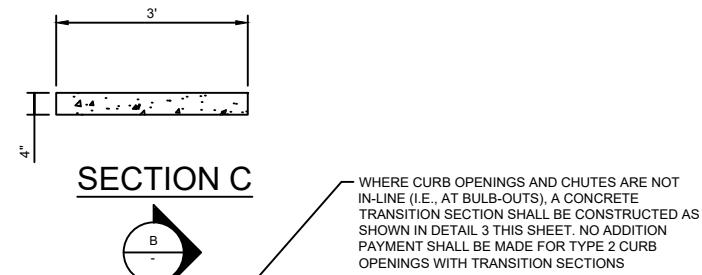
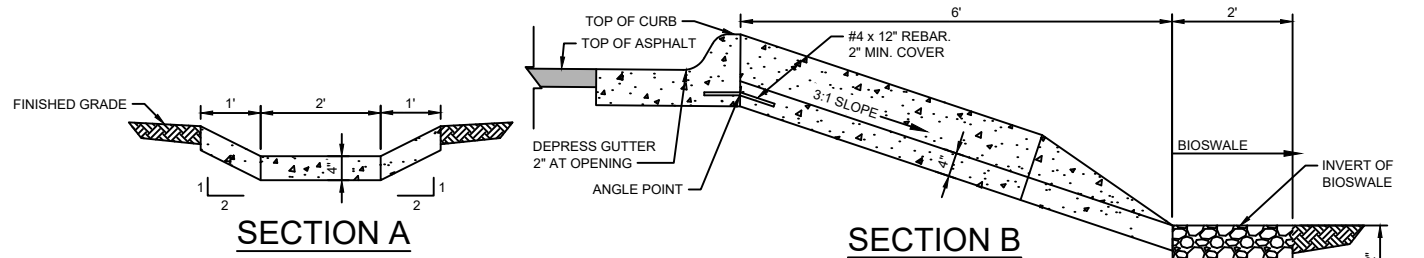
SHEET
OF
24 F25



**TYPE 1 CURB OPENING
(STANDARD CURB OPENING)**

1
-

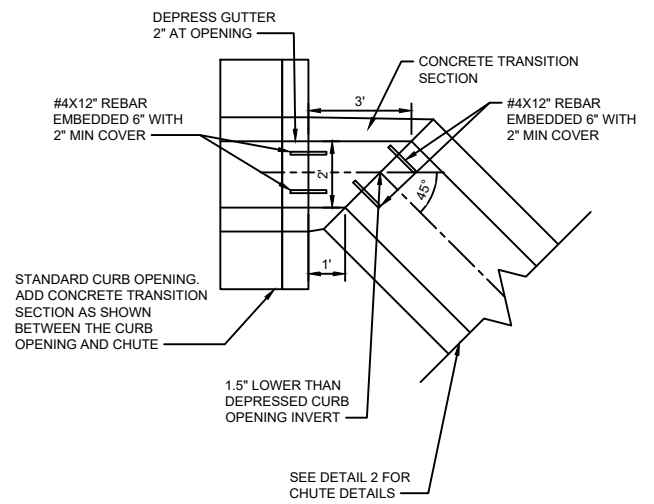
- NTS
- GENERAL NOTES:**
- POUR ENTIRE CURB OPENING SECTION AS MONOLITHIC SLAB.
 - SEE STANDARD DRAWING STD- 740 'TYPICAL "L" CURB/GUTTER SECTION' FOR CURB/GUTTER SPECIFICATIONS.



**TYPE 2 CURB OPENING
(CURB OPENING W/ CONCRETE CHUTE)**

2
-

- NTS
- GENERAL NOTES:**
- POUR ENTIRE CURB OPENING SECTION AS MONOLITHIC SLAB.
 - SEE STANDARD DRAWING STD-740 'TYPICAL "L" CURB/GUTTER SECTION' FOR CURB/GUTTER SPECIFICATIONS.
 - PLACE #4 REINFORCING BARS 12" ON CENTER, EACH WAY, THROUGHOUT THE CONCRETE CHUTE AND AND FLARE. MAINTAIN A MINIMUM OF 2" OF COVER FOR ALL REINFORCING BAR.
 - CHAMFER ALL EXPOSED EDGES AND CORNERS TO 1".
 - COURSE GRAVEL PROTECTION SHALL CONSIST OF 3/4" TO 6" DIAMETER ANGULAR CRUSHED ROCK.



**TYPE 2 CURB OPENING
TRANSITION SECTION**

3
-

NTS

REVISION	DATE	DESCRIPTION

DESIGNER	LAS	PROJ. NO.	7065
DRAWN	MKW	DATE	05/05/2021
CHECKED	JLS	SURVEYED	DJ&A, P.C.



MULLAN BUILD - DRAINAGE - STORMWATER - IRRIGATION
100% - BID PLANS

STANDARD STORMWATER DETAILS - 2

SHEET	OF
F25	F25